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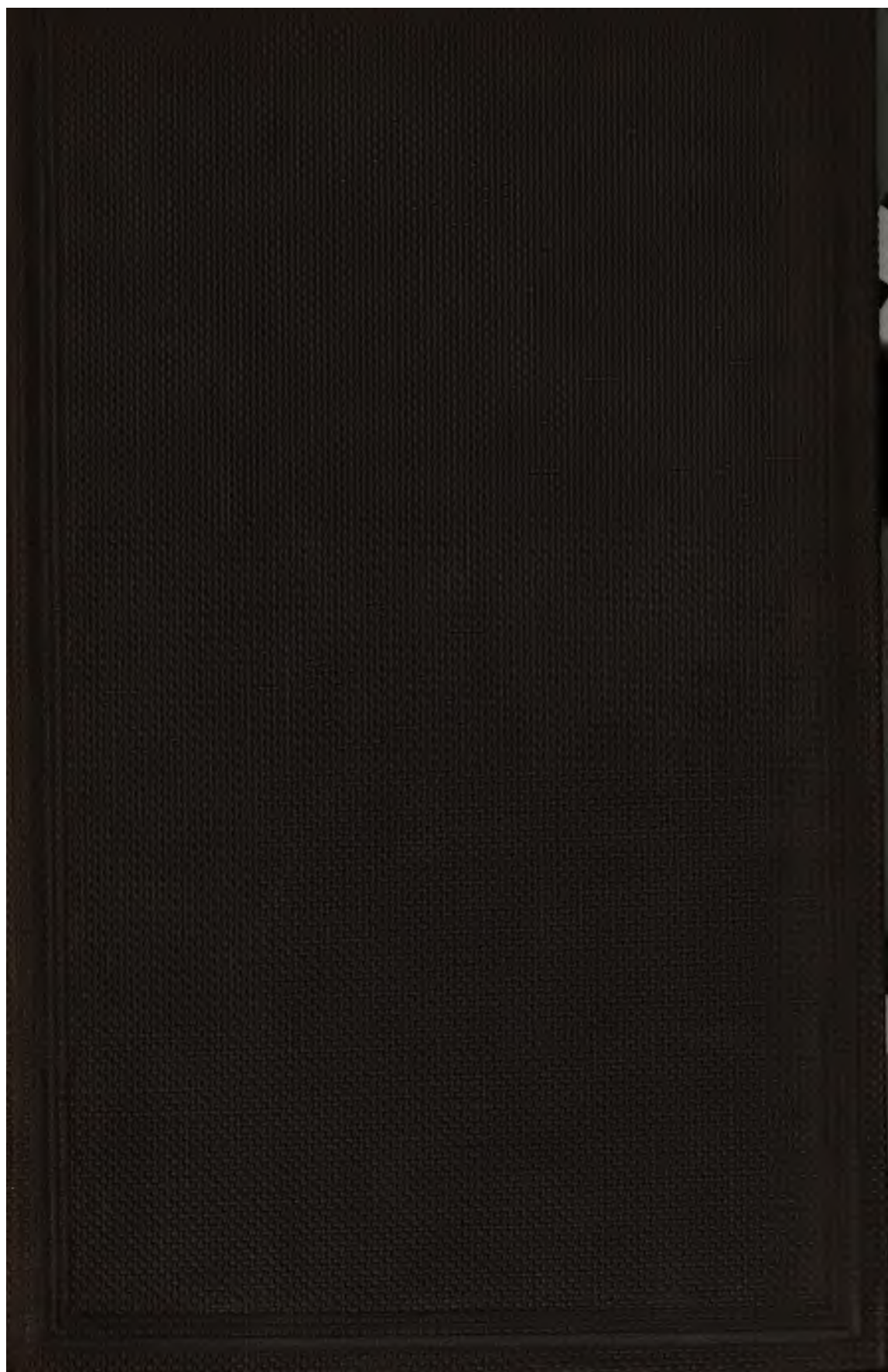
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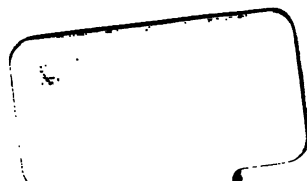
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A MANUAL
OF
NAVAL TACTICS:

TOGETHER WITH A
BRIEF CRITICAL ANALYSIS OF THE PRINCIPAL
MODERN NAVAL BATTLES.



BY
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TO THE
HONORABLE SECRETARY OF THE NAVY,
GOVERNOR TOUCEY,
THIS ENDEAVOR TO AWAKEN ATTENTION TO A MOST IMPORTANT,
YET MOST NEGLECTED,
BRANCH OF THE NAVAL PROFESSION,
IS
RESPECTFULLY DEDICATED.

July, 1859.

NAVAL TACTICS.

SECTION I.

INTRODUCTION.

A SYSTEM of Tactics enables the Admiral commanding a fleet to control its movements generally in respect to safety; to change it from one order of sailing to another without collision or confusion; to restore the order when deranged by shift of wind; to form for battle with regularity and rapidity; and to re-form the line of battle deranged by change of wind. The system also embraces various modes of making, receiving, or avoiding an attack, and provides for secure and orderly retreat in face of a superior enemy.

But it is of little avail that Admirals are accomplished tacticians, unless the subordinates, especially Captains, understand the system familiarly, so as at once to comprehend a manœuvre directed by signal, and to enter, without hesitation, uncertainty, or delay, upon the prescribed method of execution. This readiness cannot be suddenly acquired. It comes only from much study, best begun in youth, unremittingly pursued, and per-

fectured by practice, first in sketching diagrams, next with the use of blocks, then with boats, and finally with fleets. A single uninstructed person, or a slow because unpractised thinker, in command, may, by misunderstanding or delay, jeopardize the order, perhaps the safety of a whole fleet, or worse yet, the honor of the country in the hour of battle.

Paul Hoste is the standard author, whose system, as the basis of all established signal-books, is most worthy of study. But he is often difficult, and therefore repulsive, without elementary aid. To supply this, and by rendering the study easier make it inviting, and awaken an interest commensurate with its great and growing importance, the present book has been undertaken. It is a digest of the works of Paul Hoste, Mr. Clerk, Admiral Ekins, and of various histories, made while in command of a corvette on the coast of Africa, where it served to beguile leisure, and relieve the tedium of service in that torrid region. The aim has accordingly been, by keeping in view the rudimentary character of the undertaking, to produce, what is needed in every science, a primer, or first book, teaching the several fleet formations, and how to determine, assume, and preserve them.*

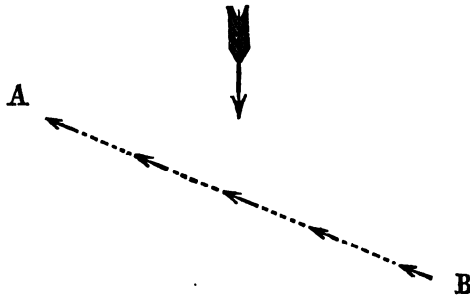
The manœuvring of fleets has, immediately or remotely, one end and object—success in battle. To illustrate this, and show how victory, partial or decisive, has been, and therefore may again be achieved, several great battles are adduced, and are analyzed in a manner to detect the particular features of plan or of execution to which the result in each case may be attributed.

* The *rudiments* of a subject are all which need be *taught*. Further knowledge may be acquired without instruction, in a good degree by observation accompanied by reflection.

OF THE ORDER OF BATTLE.

The "Order of Battle" for a fleet, is the disposition of it for engagement under sail.

The *technical* order of battle, as described in works on tactics, and referred to in signal-books, is formed on a "close-hauled line," which is a line making an angle of six points with the direction of the wind. On this line, as A B in the figure following, the ships, represented by arrow-heads, are arranged in order of



battle, six points from the wind, ahead and astern of each other, the broadsides presented in a uniform direction, and so that the rear may close up by ranging ahead to assist the van or head of the line if pressed by a superior force, or the van wear round and run large to aid the rear under like circumstances. The feathered arrow indicates the direction of the wind. In all subsequent figures, in the absence of such indication, the wind is to be understood as from the top of the page.

The space or distance between the ships thus in order of battle, is prescribed by signal, and differs with circumstances. Usually it is one "cable's-length," which gives room for seven or eight ships to the mile.

For the order of battle, the close-hauled line, when practicable, is preferable, because, 1st, the broadsides are more easily preserved in a uniform direction; 2d, ships being less in the trough of the sea, and steadied more by the canvas, roll less, therefore fire with greater accuracy; 3d, in no other position is a fleet manageable under so little "way," or the ships enabled to close so near without danger of fouling; and, 4th, a fleet with good sailing qualities, having the weather gage, can preserve it at pleasure whilst the wind does not change. But Ekins remarks, that owing to the short sail usually carried in action, fleets in order of battle frequently find it convenient to come no nearer the wind than seven points.

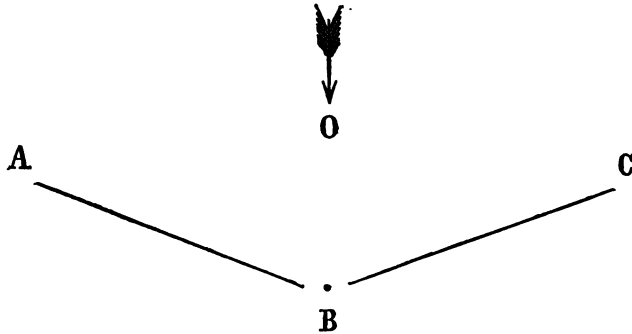


OF THE ORDERS OF SAILING.

Fleets, when cruising or on a course, are usually arranged in one of five established Orders of Sailing. A preference is given to one or other of the five according to its relative simplicity, the extension of the fleet it occasions, proximity of an enemy, size of the fleet, and readiness with which it may be changed to the order of battle. These are the five orders referred to in the signal-book of the navy. In each of them, the ships are arranged on one or both of the two "lines of bearing," one called the "starboard line of bearing," the other the "port line of bearing."

OF THE STARBOARD AND PORT LINES OF BEARING.

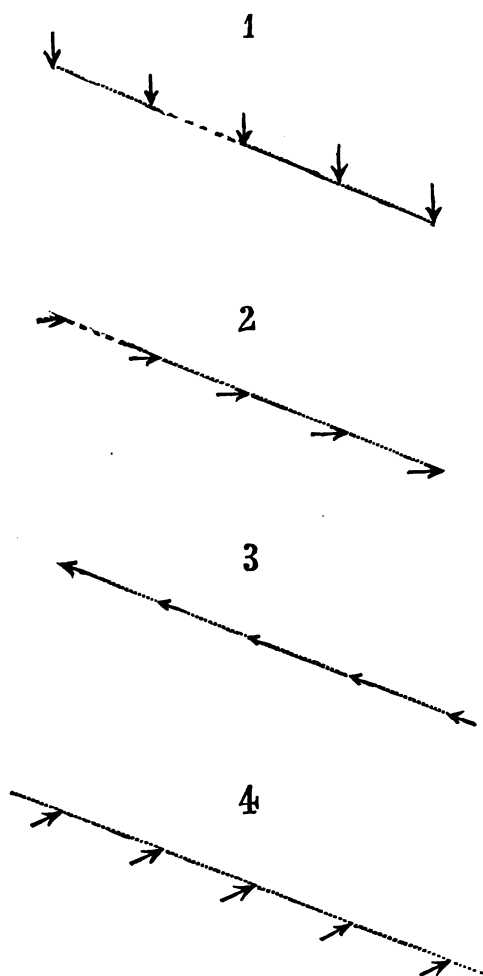
Each of these lines makes an angle of six points with the direction of the wind, and is called starboard, or port, according as it lies to the right hand, or to the left hand, of an observer looking directly to leeward, from a position directly to windward of the leeward extremity of the line. Thus in the figure following, A B and B C are each lines of bearing, ~~making~~ angles of six points with the direction of the wind, which is indicated by the feathered arrow.



The line A B is a starboard line of bearing, because it lies to the right of an observer looking to leeward from a point O, directly to windward of the leeward extremity B, of that line; and B C is a port line of bearing, because to the left hand of the observer. Ships formed on A B are said to be on the starboard line of bearing, whichever tack they are on, or at whatever point of sailing, by the wind, large, or before it; and ships in like manner on B C, are said to be on the port line of bearing. If for example the wind was North, the starboard line of bearing A B would lie W. N. W. as its windward direction, and E. S. E. as its leeward direction. The port line of bearing would have E. N. E. for its weather, and W. S. W. its lee direction.

OF THE FIRST ORDER OF SAILING.

In this order, whether by the wind on either tack, running free, large, or before it, the fleet is always in a single column, on a line of bearing. The figures below represent a fleet in the first order of sailing on the star-board line of bearing, in each of those four positions.



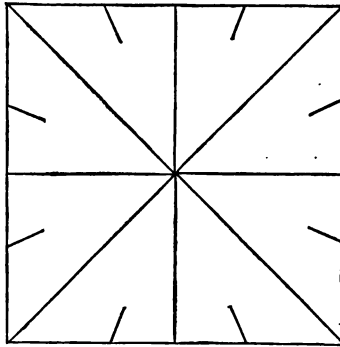
In Fig. 1 before the wind, the ships bearing relatively to each other two points abaft or before the beam; in Fig. 2, wind abeam, they bear two points on the bow and quarter; in Fig. 3, on the starboard tack by the wind, they bear ahead and astern; in Fig. 4, by the wind on the opposite or port tack, they bear four points on the bow and quarter. In Fig. 4, the fleet is on "the starboard line of bearing on the port tack."

The *absolute bearing* of the ships from each other, is the compass bearing, and is identical with the direction of the line of bearing on which they form, as is apparent in the preceding figure.

The *relative bearing* is the number of points before or abaft the beam which the ships hold to each other, and changes as the course steered changes, or as the direction of the line of bearing changes, as it does on every shift of wind.

OF THE NAVAL SQUARE.

To assist the judgment in preserving these *relative bearings* of the ships in fleet, they are each provided with the "naval square," which is a rectangular figure painted on the deck, generally between the main and mizzen masts. The combings of a hatch, marked, may



be substituted, or the capstan head. This figure has two sides parallel with, and the other sides at right angles with the keel. A fore and aft line is drawn through the middle of the figure, and lies in the vertical

plane of the keel; another line is drawn across the middle at right angles with the keel. The square has also two diagonals, with intermediate marks. See figure.

DETERMINATION AND MAINTENANCE OF POSITION, ABSOLUTELY ON THE LINE OF BEARING, AND RELATIVELY ON THE NAVAL SQUARE.

On signal to form an order of sailing on a line of bearing, the first thing required under it is to determine promptly the compass direction of the line of bearing.

To do this, mark the direction of the wind on the compass card. Count off six points to the *left*, which gives the weather direction of the *starboard* line of bearing. Or count off six points to the *right*, which gives the weather direction of the *port* line of bearing. The lee direction in each case is of course in exactly an opposite point of the compass.

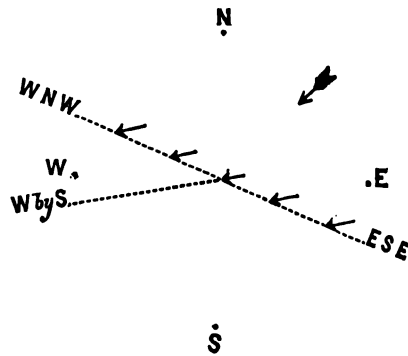
Thus for example, suppose a fleet steering W. by S., and the signal made to form the first order of sailing on the port line of bearing, the wind being N. E.

Count six points to the right of N. E., which marks E. S. E. as the weatherly direction of the port line of bearing. The opposite or leeward direction is W. N. W.

Each ship then so steers and regulates sail as to fetch or drop into a position which shall give the Admiral, or any other which he may have substituted as a regulating ship, the bearing by compass coinciding with the line of bearing.

In the example given, the weather division of the fleet would bring the Admiral to starboard, or to leeward of it, bearing W. N. W. Those to leeward, would bring him E. S. E. See Figure on next page.

Then all the ships, by steering the course given, W. by S., take relative positions on the naval square—the ships to starboard or to leeward of the Admiral holding him, in the example given, five points abaft their beams; those to port or to windward holding him five points before their beams, relatively on the naval square. The Fig. following represents the fleet in the position required:



If the course is changed, it alters the relative bearings on the square, but not the compass bearing of the flag or regulating ship.

If the wind changes, but not so as to head the ships off, both the absolute and relative bearings are maintained, until signal is made to restore the order of sailing on the new line of bearing.

If the wind changes so as to break the ships off, they still maintain the compass bearing of the Admiral, which will prevent confusion, until signal is given to restore the order on the new line of bearing.

In case of being taken aback, cast with the Admiral to starboard or port, as he does, and avoid collisions.

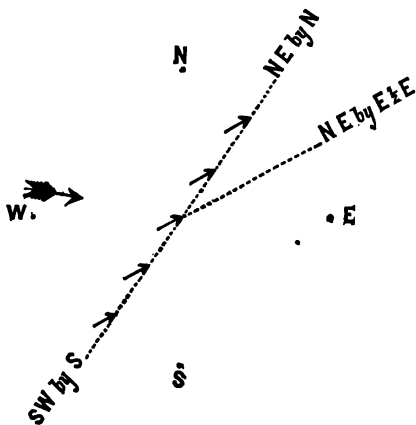
It is to be particularly remarked, that in the foregoing example, the wind is three points on the starboard

quarter. Consequently, the weather division, that is, the division actually to windward, which is on the port quarter of the Admiral in the centre, is also on his lee quarter. In proof that this port division, although on his lee quarter, is really to windward, haul all by the wind on the port tack heading E. S. E., wind N. E., and these port ships will become the headmost and weathermost ships of the line. Refer to the preceding Figure, and this will appear.

So also the starboard ships, although when steering the course given in the example W. by S. they are on the Admiral's weather bow, when by the wind on the port tack, they would become the sternmost and leewardmost ships, proving them to be in reality to leeward, as will appear by reference to the preceding Figure.

This is matter for *study*, and can be rendered clear only by the use of a compass card and the construction of diagrams, and must be thoroughly mastered, for it constitutes the key to the entire subject of managing and manœuvring fleets.

For exercise, take another example, more difficult, in which the fleet will be arranged as in the following Figure :

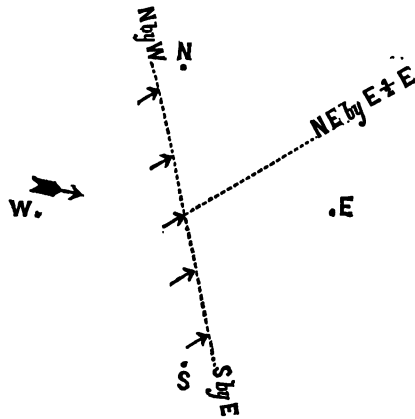


The fleet is steering N. E. by E. one-half E., wind W. by N., flag in the centre, signal is made to form the first order of sailing on the starboard line of bearing.

Determine the line of bearing, the weather direction of which is S. W. by S., its lee direction N. E. by N. The ships to starboard of the flag, which in this case also are really to windward of it, though on its lee quarter, will bring it to bear N. E. by N., relatively five and a half points before their beams.

The ships to port of the flag, which in this case are really to leeward of it, though on its weather bow, will bring it to bear S. W. by S., relatively five and a half points abaft their beams. See the preceding Figure.

Take, again, the same example of wind and course, but on the port line of bearing.



The weather direction of the port line of bearing is N. by W., the lee S. by E. The ships to starboard of the flag, which in this case are both to leeward of it and on its lee side, will bring it to bear N. by W., relatively one and a half points before their beams.

The ships to port of the flag, which in this case are both to windward of it and on its weather side, will

bring it to bear S. by E., relatively one and a half points abaft their beams. See Figure preceding.

This is at first puzzling. But by aid of a compass card with the line of bearing drawn across it, and the ships marked upon the line of bearing, each one on the course, with a line drawn at right angles to the course, denoting the direction of the beams of the ships, the solution will become more and more clear, until questions of the kind arising on duty will be solved, like others one has become familiar with, by a thought.

An instrument has suggested itself in the course of this writing, which may be found to facilitate these determinations.* It consists of a card, graduated like a compass card, represented by the following figure, in which U R H P F is one piece of pasteboard or



* See last page.

metal, and A D another piece, each revolving separately around the centre, O, where is also a milled set screw, if of metal, or other contrivance, by which the two pieces are fixed in any required position.

The points R and P are constructed to stand each at an angle of six points with U F, and the point H at right angles with U F.

The points A and D are constructed at right angles.

If P be set on the wind's direction, U F will fall on the port line of bearing.

If R be placed on the wind's direction, U F will fall on the starboard line of bearing.

If H be placed on the direction of the wind, U F will fall on the perpendicular to the wind.

If A be placed on the course steered, D will fall on the beam line of the ships.

The points on the compass card included between F or U and D, give the number of points which the ships are relatively before or abaft the beams of each other, on the naval square.

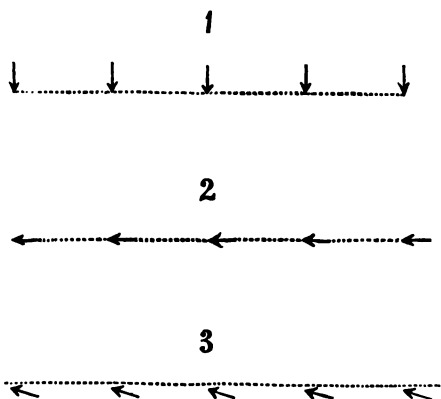
The instrument is represented as set for the first of the preceding examples, wind N. E., port line of bearing, and inspection will indicate the method of using it for other examples.

REMARKS.—The first order of sailing is most convenient for forming the Line of Battle on the same line of bearing the fleet sails on, but is not convenient for forming the order of battle on the opposite line of bearing. The first order is objectionable for a large fleet, principally because, although simple, it produces too great an extension. One of twenty sail in this order would occupy more than five miles of space when sailing at two cables' length (one-fourth of a mile) asunder, or half that space at one cable's length apart.

The first order is nevertheless convenient even for a large and extended fleet to sail in, temporarily, in close order, on occasions making it desirable to steer a course as long as possible, and yet be prepared to come suddenly and speedily into order of battle for receiving a threatened attack, when *certain* of the line of bearing on which the line of battle will, if at all, be formed.

OF THE SECOND ORDER OF SAILING.

In this order the ships of a fleet, at whatever course, or point of sailing in reference to the wind, are formed on one line perpendicular to the direction of the wind, represented as follows:



In Fig. 1 they are relatively abeam, before the wind; in Fig. 2, ahead and astern, wind abeam; in Fig. 3, by the wind, two points on the bow and quarter.

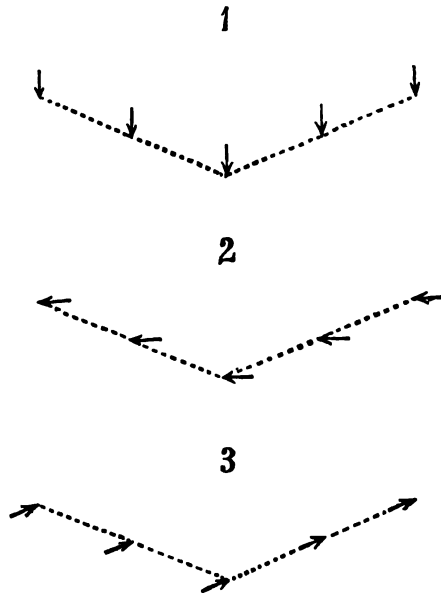
To place the ships of a fleet in the second order when required by signal, each one brings the "Flag," by compass bearing, at right angles with the direction of the wind, and at the prescribed distance; then steers the course given for the fleet. To *retain* position, keep

the relative bearings correct by frequent reference to the naval square.

REMARKS.—The principal demerit of the second order, is its too great extension of a numerous fleet. It has, however, the merit of simplicity; and with an enemy near, especially if uncertain on which tack it may be necessary to give battle, has the further merit of convenience for forming readily, and with nearly equal facility, the close-hauled line on either tack.

OF THE THIRD ORDER OF SAILING.

In this order the whole fleet, however steering by compass, or at whatever point of sailing respecting the wind, is always on both the two lines of bearing—one



wing on each line—with the centre or angular ship to leeward, at the angle made by the junction of the two lines of bearing, which thus form an obtuse shape, *pointing to leeward*, as in the Figures preceding.

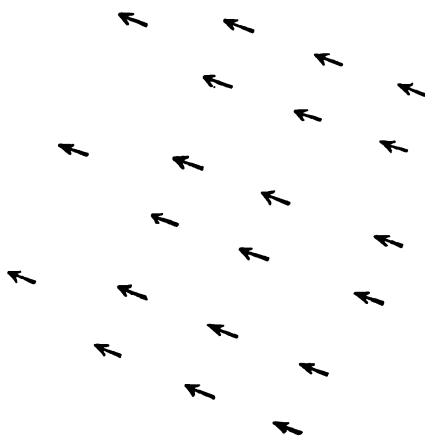
Fig. 1 represents the fleet in the third order before the wind; Fig. 2 with the wind abeam; Fig. 3 by the wind.

REMARKS.—Like the second order, this has the merit of simplicity, and of equal adaptability to the ready formation for battle on either tack, and though extending a large fleet too much, Paul Hoste remarks that “for a small fleet it is a favorite.”

OF THE FOURTH ORDER OF SAILING.

In this order the fleet is in three double columns, making six in all, each division composing a double column, with the commanders of divisions at the heads of their respective double columns; and abreast, or else in direction of the wind from each other.

The Figure following represents a fleet of twenty-



one ships, in three divisions, each in a double column, with its commander at the head. The three commanders at the heads of their columns, or divisions, are in this case abreast of each other. Whilst these relative bearings are maintained, the fleet, whatever course by compass it may be steering, or whether by the wind, free, large, or before it, is in the fourth order of sailing.

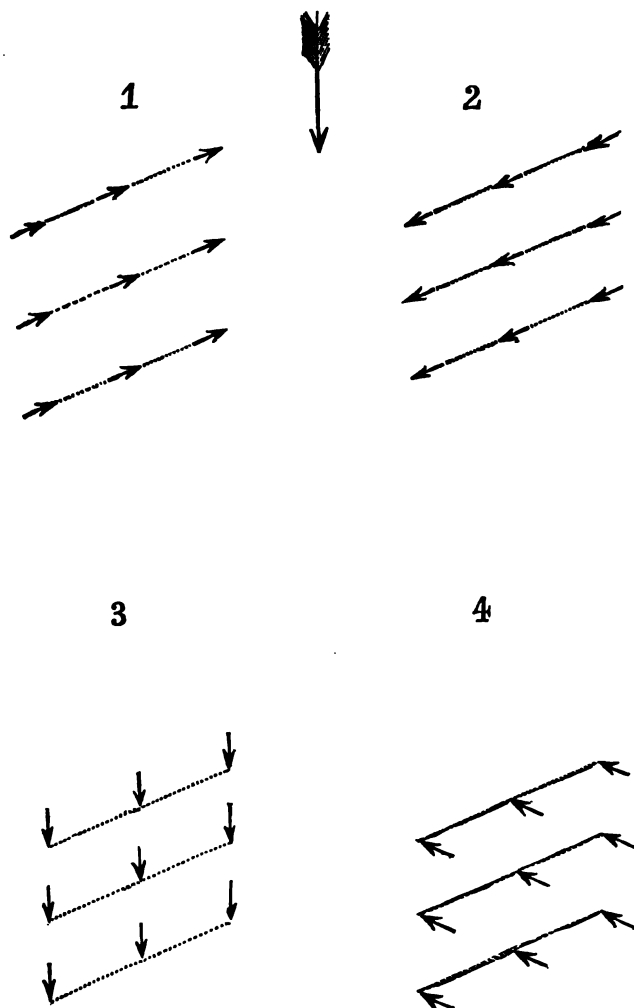
REMARKS.—This order, complicated, difficult to form, and difficult to preserve, is according to Paul Hoste rarely or never practised. It is difficult also to be understood. Hence, in a course so purely elementary as this, it needs no further notice. Its sole advantage is the compactness it gives to a very numerous fleet. To manœuvre it, in all cases it is first resolved or extended into the fifth order. In fact it may be regarded as the fifth order compacted.

OF THE FIFTH ORDER OF SAILING.

In this order the fleet is in parallel columns, usually three in number, each of which is formed on a line of bearing. The leading ships of the columns bear from each other in a direction parallel with the direction of the wind, unless otherwise specially ordered by signal to form abreast—which is however objectionable, because what is abreast on one course is not so on another, hence is uncertain and changing; whereas the direction of the wind is apparent and more fixed, whatever the course.

The Figures here following represent a fleet in the fifth order in three columns, on the port line of bearing, with the leading ships in the wind's direction from each other; in Fig. 1 it is close-hauled on the port tack; in Fig. 2, running four points large with the starboard

tacks aboard; in Fig. 3, before the wind; in Fig. 4, by the wind on the starboard tack.



Each dotted line in the Figures is a port line of bearing, on which the ships of each column arrange and preserve themselves, as heretofore explained.

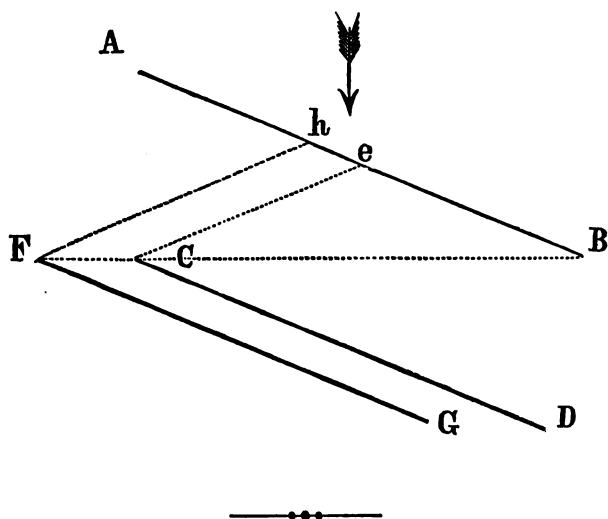
REMARKS.—“This,” says Father Paul Hoste,* “is the order of sailing most befitting a fleet, and that which is most in usage.” Again he says, “this order of sailing has none of the defects of the others, for it concentrates the fleet as much as necessary, and places it in a condition to perform with promptitude and ease all the movements that may be required.”

This order seems frequently to be formed in practice on two columns, as appears from the descriptions connected with the battle of Cape St. Vincent, that off Ushant, and others. The distance apart of the leading ships of the columns, is not prescribed. Ekins casually remarks that when sailing in three columns it is a mile, though one would suppose it should depend upon the length of the columns, and that the van ship of a centre or lee column should be on some given angle or bearing with the rear ship of the next column to windward.

Let A B of the figure following represent the weather of two columns in the fifth order. Let C D represent the second or lee column, with the head C in direction of the wind from A; or let F G represent the second column, with the head F abreast of A, as in position at right angles with A B. In both instances let the angles B C D and B F G equal two points. Draw C e and F h, making B C e and B F h each angles equal to two points. Then will the sides C e and e B be equal; also the sides F h and h B; showing that if F B is perpendicular to the wind, the head of the lee column, whether at C or F, has, when tacked, the same distance to sail on C e or F h, as the rear ship of the weather column on B e or B h, in order to reach e or h, the points at which the lee leader gains the wake of the weather column

* So called, because he was a “Father of the Order of Jesus,” in other words a Jesuit priest. He served actively several years in the time of Louis XIV. as Chaplain with a French Admiral, the Count de Tourville.

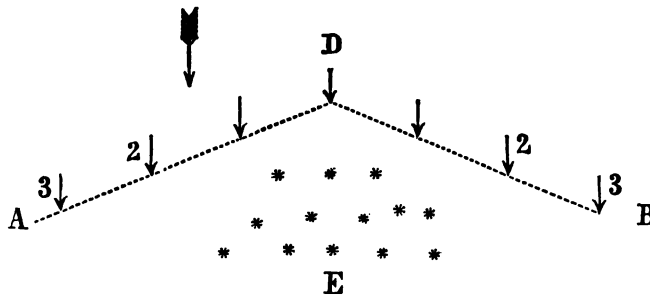
standing on. Hence if the head of one and the rear ship of the other of two adjacent columns in the fifth order, bear reciprocally on a perpendicular to the wind, the two columns are as near as is practically useful—for then, if it is wished to form the whole fleet in one column by bringing the lee line or lines in wake of the weather, tack the lee ships together, and they will come on lines parallel with Fh or Ce into the required position, without loss of time or space on the one hand, and on the other without crowding.



OF THE ORDER OF RETREAT.

The Order of Retreat is formed by placing the two equal, or nearly equal wings of a fleet on the two lines of bearing, one wing on each line as in the third order of sailing, except that in the third order the centre or angular ship is to leeward, whereas in the order of retreat it is to windward, the obtuse shape *pointing to*

windward. The ships which in each wing are at corresponding distances from the centre, are reciprocally on a line perpendicular to the direction of the wind, hence abeam when before the wind. The ships of each wing bear, when thus before the wind, two points before the beams of the centre ship, and the small vessels, transports, &c., are placed for protection in the space included between the wings.



The preceding Figure shows a fleet thus arranged; D is the angular ship to windward; D A and D B are the wings; the ships are before the wind on lines of bearing, consequently they are two points before the beams of D. The corresponding ships of the wings, as 2 and 2, 3 and 3, are reciprocally on a perpendicular to the wind, consequently abeam of each other when before it. The dots at E, are the small vessels, &c., grouped between the wings for protection.

When the order of retreat is directed to be formed, or re-formed, the fleet arranges itself in this manner before the wind, and then if a course other than a continuation of retreat before the wind is to be steered, the Commander-in-Chief directs such course by signal, and all the ships haul their wind accordingly together; but they continue on the lines of bearing, so that when steering off again by signal together for retreat before

it, the fleet comes instantly in the order of retreat required.

This order appears to be based on the inference, that as a superior fleet in position for making an attack is of necessity to windward, the natural course of retreat is before the wind. Strictly, therefore, the ships are not, it is conceived, in the order of retreat unless before the wind, although when on another course they are in such relative positions, and on such lines of bearing as constitute readiness for resumption of the order before the wind.

This form for retreat is held superior to that of a single straight line, as the second order of sailing, because in the latter the extreme wing ships can be approached with impunity, and cut off singly in detail by the fast vessels of the chasing fleet detached from its main body for that purpose; whilst in the former—the order of retreat—an enemy overtaking either wing directly from astern, encounters a cross fire from both the stern batteries and broadsides of that whole wing, as will appear by inspection of the diagram.

If a retreat is conducted with the wind abeam, and the obtuse shape is preserved but pointed to an enemy chasing from a direction which is perpendicular to the wind, the retreating fleet so formed is not in any recognized order, nor its wings on a line of bearing, or in any arrangement from which the order of battle can be formed with regularity and rapidity; yet the advantage arising from the angular shape, that is, mutual protection by cross fire from the stern and broadside of contiguous ships, also cover for the transports, continues.

OF THE ORDER OF CONVOY.

In this order, a fleet is in two or more columns, formed on lines parallel with the course. Consequently all the ships in each column, when on the course given to be steered, are in wake of the leader, ahead and astern of each other.

If the wind changes to head the ships off the course, continue the compass bearings of the ships to correspond with the course which had been steered, until signal is made to re-form the order of convoy on the new course rendered necessary by the change ; when all the ships, by being brought in wake of the close-hauled leader, resume the order. Thus if the columns are steering south, formed on north and south lines, and the wind drawing ahead to S. S. E. breaks the ships off to S. W., they continue their respective leaders on a south bearing, until signal is made to re-form the order of convoy deranged by change of wind ; when all but the rearmost ship edge away in succession for a position ahead of, and S. W. from, the rear ship of their respective columns.

The term Convoy, in its popular sense, refers to an accompanying force having protection or assistance as its object. The word corresponds in its meaning as applied to an operation at sea, with that of escort as applied on shore. Yet in its technical sense, as here used, the order of convoy seems to be an arrangement in which a fleet composed of men-of-war only, sometimes sails ; as appears from signals which provide for changing to an order of battle from the order of convoy.

There are occasions, for which signal books provide, when it may be conceived necessary to "change" a fleet of men-of-war from an order of sailing to the order of

convoy, and the reverse. For example, suppose such a fleet, sailing in an extended order, needs to lead through a narrow pass in a more compact body, say in three parallel columns, by a course which does not correspond with either of the lines of bearing. To "change from the order of sailing to the order of convoy in three columns," would be the proper signal. When through the pass, the "change" would be, by signal, again to the order of sailing; unless the lead through had been for battle, when the "change" would be "from the order of convoy to the order of battle," for which there is also provision.

REMARKS.—The foregoing eight orders, that is, the Order of Battle, the Five Orders of Sailing, the Order of Retreat, and the Order of Convoy, are those to which the signal book refers. When commanders-in-chief establish other arrangements, to suit an occasion or a peculiar view, they are designated as "prescribed orders," and signals concerted accordingly.

SUPPLEMENTAL TO SECTION I.

OF MANŒUVRING FLEETS.

THE text of the foregoing pages was prepared for press long before the new signal-book of 1858 appeared. All references are therefore to the old one. The author, seeing the want of diagrams to illustrate the various evolutions directed, and in some few instances described in it, had undertaken the illustrations. But since meeting with the new book which contains them, and has come to hand almost at the moment of going to print, that portion of the manuscript is suppressed, with congratulations to the officers composing the board of revision, on the successful manner in which the work is executed, placing it almost beyond criticism.

Timid seamen may, however, be startled at *sailing* in close order, or one cable's length apart, unless indeed they give a large estimate of that measurement. It may also be found that, if ever intended, tacking in succession a column in close order will prove impracticable, for the reason that ships sailing at the moderate tacking speed of six knots, or not far from forty thousand feet per hour, make nearly a cable's length per minute; and few or no modern ships go about and gather way

in less than three or four minutes of time—and in that proportion of time for other rates of speed. Hence, if this figuring be correct, the order must be opened in practice to at least three cables' length, that collisions, or else the necessity of "keeping off," may be avoided.

The sole motive which could actuate any one to repeat the system of diagrams in illustration of manœuvres as given in the new signal-book, would be to bring them for study within reach of junior officers—the very class which needs to handle and discuss such subjects, in order that the essentially important knowledge, familiar knowledge, of tactics, should have been acquired before, and not need to be learned after reaching command, and the access which command gives to the signal-book. It was conceived, that possessing, as Government does, the cuts, they might with advantage be given to the service at large in some form with suitable explanations, yet without violating that reserve in which the signal-book ought most carefully to be guarded. But the authorities thinking otherwise, submission to their views is cheerfully rendered.

In absolute strictness, whilst a signal-book is based on Paul Hoste's system, or on any other system publicly known, so long there is nothing of a secret character in the book—save and except the numeral flags and the printed signal numbers. On the other hand, a signal-book based on no known system, is comparatively useless, because no commanding officer can have the knowledge and familiarity necessary to its use in fleets, where study and deliberation are inadmissible, but conception and execution must generally in manœuvring follow signals with a rapidity wholly incompatible with knowledge newly acquired, or which has not become familiar, almost like a vernacular tongue, either by actual practice, or by long continued attention.

When a fleet has by design, negligence, fogs, calms, squalls, gales, or any of the numerous causes operating on the unstable element, been thrown into utter disorder, for reducing it again to order the "system of tactics" requires a signal to "form" in some one of the orders, as pointed out in the foregoing pages.

When sailing in an established order, and a shift of wind produces derangement, not disorder, the system requires a signal "to restore the order."

When, formed in one of the orders, it is desired to place the fleet in another order, the system requires a signal to "change" from the one to another.

And if occasion requires the parts of a fleet transposed, or the order reversed, the signal is made to "interchange," or else "to invert."

OF RESTORING THE ORDERS WHEN DERANGED BY CHANGE OF WIND.

This manœuvre, from the variety of orders, and of circumstances attending the derangement of each order, is of multifarious execution. It consists entirely in bringing the ships of a fleet, however sailing if in an order and the wind changes, again on to such bearings in respect to the wind, or in such relations to the leading ships of columns, as existed before the change of wind took place. Thus in the order of battle, in the first, third, and fifth orders of sailing, and in the order of retreat, to restore them is to bring the ships again on one or the other or both the lines of bearing; in the second order it is to bring them relatively again on a perpendicular to the wind; and in the order of convoy, if headed off the course, it is to bring the columns again in the wake of their respective leaders.

As a fleet in any of the sailing orders may usually be in open order, and for the most part sailing with the wind free or more or less abaft the beam, ordinary changes of wind are met by simply ranging or dropping the ships on to the new bearing required. In the fifth order, with the wind coming out to break the ships off the course steered, some complication may arise. But even then, as there is rarely occasion for haste, no confusion or damage can ensue, provided the bearing of the regulating ships of the columns is carefully continued by the others, and those regulating ships maintain proper relative positions until the signal to restore the order is displayed.

Not so, however, with restoring the order of battle. It is always by the wind in line ahead; it is always in close array, making great exactness and uniformity of method necessary to avoid collisions; and as that order is held only in presence of an enemy, usually promptness and celerity of execution are required.

Hence any enlargement on this manœuvre with the sailing orders, is omitted; and the few pages allotted are best used in considering the methods for restoring the order of battle, with some notice of the order of retreat, which also needs promptness in execution, because presumed to be held in reference to the proximity of an enemy.

OF RESTORING THE ORDER OF BATTLE.

The cases arising under this head may be reduced to two: 1st, when the wind hauls forward; 2d, when the wind hauls aft—whether the order is to be restored on the same or on an opposite tack.

When the wind hauls ahead, thus favoring an enemy who may be contending for the wind, and it becomes in consequence desirable for the fleet to hold its wind, and preserve as much as possible a weatherly position, to execute the manœuvre the ships to leeward beat up for the leader's wake, and re-form on that ship as the weathermost of the fleet. But this is a work difficult and tedious.

If, on the other hand, a weatherly position is not of importance, or when from too much or too little wind all will not stay, all but the rear ship steer off, and by bringing to the wind again when on a line of bearing with, and ahead of, this close-hauled rear ship, they re-form the line on that ship as the leewardmost of the fleet.

But if rapidity alone is the object, an extended fleet is quickest restored to order on the new line of bearing, by tacking the rear ships, and steering off the van, re-forming on the centre ship. The difference of time in favor of re-forming on the centre ship, will not, however, be great, unless the change of wind is considerable.

When the wind hauls aft, it has so favored the fleet, that usually it forms on the leader, now become the leewardmost ship, which comes to the wind and stands on whilst the remaining ships steer off for its wake.

All the manœuvres thus sketched will be more minutely explained in the pages immediately following.

WHEN THE WIND HAULS FORWARD.

To form on the weather ship, it barely holds steerage way, whilst the remaining ships tack together and stand on until they successively reach its wake. They then tack again in succession and close, which completes the manœuvre.

For example, suppose the line of battle as in the diagram on page 7, on the starboard line of bearing, wind north, and it hauls forward three points, heading the ships off from W. N. W. to W. by S. Substitute in that diagram in lieu of the arrows a succession of V's, having the angle or point of the letter in direction of the rear of the line, with one leg of the V in the W. N. W. line ahead, coinciding with an arrow, and the other leg as a spur in a W. by S. direction. Each V will show then by one leg, a ship as it is before the change of wind, and by the other leg the same ship when broke off under the change of wind. And the spur legs of all the V's will exhibit the new relation which the ships, as headed off, will hold.

And it will not be difficult to complete the diagram by adding a third leg or spur in the direction, N. E. by N., which the ships' heads will take when they are about and standing on the port tack for the wake of the leader, which is the only ship that does not go about. The old and the new lines of bearing will angle with each other three points.

All manœuvres described ought to be sketched in this manner, by which the student not only exercises his ingenuity, but gets a clearer idea of the evolution, and ascertains whether or not his conception of it is definite.

Lest any ship, when all are tacking together, should miss stays, and gathering stern board fall off and foul her next astern or to leeward, in the wind and unmanageable, it is prudent for the leader, and all but the leeward ship to stand on till that ship is sure; and for each ship not to put the helm down until her next to leeward has the after yards full—by which precaution the order may open some, yet not more than is useful, nor to any disadvantage, because nothing is lost to lee-

ward, and the rearward ships having most to gain, have to be waited for in any event by those at and towards the van.

To form on the lee ship, it stands on in the new direction close-hauled, with barely steerage way. The remaining ships bear up together for the new line of bearing, ahead of the close-hauled rear ship, and on successively reaching it, come by the wind.

With the foregoing example, sketch the same diagram, still substituting the V's for the arrows of the Figure page 7, the spur leg of each V showing the ships' heads as broke off, but close-hauled. Prolong the spur leg of the rear V, and it will exhibit the new line of bearing on which the ships form, ahead of the close-hauled rear ship.

To form on the centre ship, it holds only steerage way; those to windward edge off or veer down for a position in the line of bearing ahead of the close-hauled centre ship; those to leeward of the centre ship tack and stand for its wake. Having successively reached the new line, the weather ships come in succession to the wind, and the lee or rear ships tack successively into line ahead; when all close, and the manœuvre is complete.

As an example, suppose the line of battle formed as in the Fig. page 7, and the ships broke off three points. Substitute in the room of the arrows a like number of V's as before. Produce the spur leg of the centre V both ways by a dotted line. The weather ships bear up, and the lee ships tack for this dotted line, and form upon it in line ahead—the former by coming successively to the wind, the latter by tacking in succession.

To form on the weather ship and on the opposite line of bearing, the van ship tacks and stands on; the other ships stand on close-hauled as headed off, and go about when they successively reach the wake of the leader which is already gone about on the other tack.

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To form on the weather ship and on the opposite line of bearing, the van ship tacks and stands on; the other ships stand on close-hauled as headed off, and go about when they successively reach the wake of the leader which is already gone about on the other tack.

Suppose the same example as before, and sketch the line of bearing W. N. W., as in the Fig. page 7. Mark the leading ship or arrow with two spurs, one showing it as headed off three points to W. by S., the other as tacked to stand on the new opposite line of bearing N. E. by N. Substitute for the other arrows as many V's as before directed. Draw the new opposite line of bearing on the van ship (now tacked), the leeward direction of which line will be S. W. by S. The ships will stand as headed off until they successively reach this new line of bearing and the wake of the leader, when they tack into line ahead and close.

WHEN THE WIND HAULS AFT.

The leader comes to the wind; the rest of the ships continue on the course headed before the wind hauled, and as they successively reach the wake of the leader, come also to the wind, forming a line ahead by the wind.

Suppose the line of battle formed as in the Fig. page 7, and the wind to haul aft three points. Substitute a V for the leading arrow of the figure, with the point of the V towards the rear, one leg in the line coinciding with the leading arrow, and the other leg pointing upward or weatherward. This upper leg indicates the direction of the leader's head, in which direction it stands, when come to the wind as hauled aft. The other ships continue to stand on as the arrows point, until they reach successively the leader's wake, when they also come to the wind in line ahead on the new line of bearing.

TO RESTORE THE ORDER OF RETREAT.

The centre ship heaves to, whilst the wings place themselves each on the new lines of bearing from it, forming anew the angular shape pointing to windward. This also is readily sketched. No evolution or manœuvre is understood, which the student is not able clearly to sketch; and it is a useless waste of both time and labor to attempt practising any combination with boats, or with ships, until it can first be clearly sketched.

For an example, suppose a fleet, as in the Figure page 25, retreating south before the wind. Suppose the wind to haul east, or come from the right-hand side of the page. The centre ship braces up the head and cross-jack yards on the port tack, head S. S. E., the main yard remaining square. The ships of the starboard or E. S. E. wing wear, the extreme wing ship first, and the rest in succession, and stand to the northward, bringing themselves N. N. W. from the centre or angular ship, it S. S. E. from them. Then they also heave to, head to the southward, in open order. The ships of the port, or W. S. W. wing, run west before the wind, until they bring the centre ship to bear N. N. E., when they likewise heave to, head to the southward. The ships are now in such relations, that they may bear up together in the order of retreat, or steer a course.

It is comparatively easy to sketch manœuvres in this way with the wind at a cardinal point, but will be found a more complicated and difficult exercise to do them from less familiar points and fractions of points.

Bear in mind, that in this, as in all other cases of change of wind, the compass bearing of the ships is not to be altered, notwithstanding the change of wind, until

the signal to restore the order is distinctly completed, provided signals are visible.

OF CHANGING FROM ONE ORDER TO ANOTHER, OR
FROM ONE TO THE OTHER LINE OF BEARING.

From the first order of sailing to the Order of Battle on the same tack: Haul by the wind together and close the line.

On the other tack: The leeward ship comes by the wind on the other tack; the remaining ships square away for its wake, which is in a line of bearing opposite to that on which the order of sailing had been formed, and bring by the wind as the line is successively reached.

As an example, suppose a fleet in the first order of sailing before the wind on the starboard line of bearing, as in Fig. 1, page 10. To form the order of battle on the port or other line of bearing, the leeward and port ship brings by the wind on the port tack. The others stand on before the wind, and each one, as in succession it reaches the wake of the close-hauled port ship, comes by the wind. When all are thus in line ahead, the line closes, and the manœuvre is complete.

From the Order of Battle on the present tack to the Order of Battle on the other tack: Tack in succession, beginning at the van.

There is in this, however, a practical difficulty, unless the manœuvre be preceded by a signal to open the order; for in close order, one cable apart, as the ships are supposed when in line of battle, a ship tacking will certainly be fouled in stays by her next astern; because, as elsewhere remarked, four minutes is not a long time to occupy in stays, in which time the next ship will sail, at ordinary tacking speed, at least three cables' length.

It seems, therefore, as if the order must be opened or the ships run off.*

Another method is to wear the van ship, and run it four points large along to leeward of the present line of bearing, the rest of the ships following in succession. This van ship then brings by the wind (the rest following) so soon as it has passed the rearmost and leewardmost ship of the old line, and can luff across its wake without danger of fouling.

From the second order of sailing, to the Order of Battle on either tack which may be required: Bring all the ships in line ahead together, with the wind abeam, on whichever tack is required; then the leader for the time being brings by the wind and stands on close-hauled, the rest following in succession as they reach the leader's wake on the close-hauled line.

For example, suppose the fleet sailing as in Fig. 1, page 18, and a signal made requiring the order of battle formed on the starboard line of bearing. The fleet immediately brings itself into position as represented in Fig. 2. The leader then brings by the wind, the rest luffing as they reach the leader's wake.

From the third order of sailing, to the Order of Battle: The wing which is sailing on the line of bearing the fleet is to form on for battle, hauls by the wind together in line ahead and stands on. The ships of the other wing steer together, with the wind abeam, for those already on the line of bearing required, and on successively reaching it (which they must take care to do astern

* Modern ships, which, by their superior build, arising from increased length, not only have greater speed, but are enabled to brace sharper, look higher, and fetch nearer to where they look, therefore to materially reduce passages, especially to parts beyond the equator, because they may cross it further west than was formerly safe, are also ships which need more time and space for stays, than those of a bluff, short build, which beat the salt water, and whirled about like tubs, twenty years and more ago.

of the line) come into place by luffing to the wind in line ahead. When closed, the order of battle is formed as required. The speed of the ships with the wind abeam must be regulated to suit circumstances. With considerable sea on, the headway of those by the wind will be very much less than that of the ships having the wind abeam. In smooth water the difference is not great.

If, for example, the line is to be formed on the port line of bearing, as in Fig. 3, page 19, the ships on that line will close, and those on the starboard line steer off with the wind abeam until they reach the others' wake, then luff and close.

From the fifth order of sailing, to the Order of Battle on the present line of bearing :

To form on the lee column, haul all the columns by the wind together on the present line of bearing, and keep the lee column under little way. Steer off the centre and weather columns together with the wind free. The rear ship of each column which is steering off, may bring the leading ship of its next column to bear on the lee bow, and steer so as to draw that ship continually a little more aft; the other ships of each column will steer a course parallel with their rearmost ship; and each column, as it reaches the line of bearing ahead of the rear or lee one, will haul by the wind in line ahead. When all are on the line and closed, the manœuvre is complete.

For a diagram to illustrate this, take Fig. 1, page 22, in which, whilst the lee column keeps the wind, as in the Figure, the ships of the centre and weather columns are to be considered, or be sketched, as steering off together with a free wind for positions on the close-hauled line, ahead of the lee column.

To form on the centre column, all the columns being by the wind, and the centre column with barely steer-

age way, steer off the ships of the weather column together, as before, for a position on the line of bearing ahead of the centre. Tack the lee column together and stand for a position on the line of bearing in the wake of the centre. Bring all into line ahead and close, and the manœuvre is complete. Refer to Fig. 1, page 22, in which it will appear that if the centre holds its wind, the weather runs off together for a place in the line ahead of the centre, and the lee column tacks together for the wake of the centre, then retacks into line, the manœuvre will be easily performed. Nothing to leeward is lost by this method, and it is most expeditious.

To form on the weather column, it holds its wind under short sail, both the lee columns tack, all the ships together, for the wake of the weather, and when they have successively reached it, they retack into line with it, close, and the manœuvre is complete.

If in Fig. 4, page 22, the weather column be conceived about into line ahead on the port tack, the other two columns show correctly the manœuvre in process of performance.

To form on the lee column, present line of bearing, the lee column becoming the van, all the columns haul by the wind in line ahead together. The lee column stands on with full headway. The centre and weather reduce their way, and when the lee column is nearly its length in advance, the centre bears up together for the wake of the lee column, where it brings by the wind into line. When the centre has drawn ahead out of the way, the weather column bears up in the same manner, and comes to the wind in wake of the others.

See Fig. 3, page 22, in which, if the lee column is conceived by the wind on the port tack, and drawn ahead out of the way, the other two columns appear correctly, except that, as is evident, the weather one is precipitate, and following the centre too closely.

From the fifth order, to the Order of Battle on the other line of bearing: Haul all the columns into line ahead by the wind, tack the leader of the weather column, and the remainder of that column in succession; the centre and lee columns continue on, and when their leaders successively reach the wake of the weather column, they tack, followed by the other ships of their respective columns in succession. When all have tacked into one line they close, and the manœuvre is complete. See Fig. 1, page 22, by which the steps of the manœuvre are readily traced out.

Unless, however, the order is previously open, the manœuvre will not be practicable.

From the fifth order, to Line of Battle:

To form on the other tack by wearing, the leader of the weather column wears short round, and runs four points large parallel with and along to leeward of its own column, and hauls by the wind again so soon as it can cross the stern of the rear ship of its column without risk of fouling. The other ships of the column follow in succession the movements of their leader, luffing into line ahead on the other tack when they reach the wake of the leader, now by the wind. The centre column stands on until its leader is on a perpendicular to the wind from the weather leader (the two leaders standing in opposite directions), and then the centre also doubles short round, and with its whole column repeats the manœuvre described for the weather column. Lastly, the lee column imitates the centre; by which the three columns have, in the shortest time and with least loss to leeward, been brought into one line ahead on the opposite tack. By aid of Fig 1, page 22, it will not be difficult to trace out the steps of this manœuvre.

To form on the other line of bearing, but on the lee

column, it becoming the van, wear the lee leader short round, and run it four points large, bringing it by the wind on the opposite tack so soon as it can clear the rear ship of its column, all the other ships of that column follow in succession the movements of their leader. The centre column wears in succession by a considerable sweep, and falls into the wake of the lee column. The weather column does the same; and the whole, having thus, each column in its turn, wore round and fallen into a line ahead on the other tack, the manœuvre is complete.

To change from the Order of Battle, to the Order of Retreat, run the leader off four points large; the rest of the ships stand on by the wind, and as they successively reach the leader's wake they steer off and follow that ship. When the centre ship reaches the point at which the others have kept away, the whole fleet bears up before the wind and assumes together the order of retreat. Or, instead of retreating before the wind, steer a course, but yet keep all the ships on their correct bearings from the centre or angular ship. By comparing the Figs. on pages 7 and 25, the explanation will be readily understood.

To make the same change, but by bearing up the whole line together, put the whole fleet before the wind together; the ships of the lee half of the fleet keep their positions relatively and on the line of bearing, but reduce speed; those of the weather half make sail in proportion to their distance from the centre, and again reduce it when they have successively come on to an opposite line of bearing with the centre ship. A reference to the Figs. on pages 7 and 25 will, it is believed, render all this so clear that it may be readily sketched.

From the Order of Retreat to the Order of Battle:

All the ships of the fleet run together four points large; the wing which when steering thus is in line ahead, hauls successively to the wind, the leader first, then the others, forming a line ahead; and the ships of the other wing, as they arrive together on this line, bring by the wind also in line ahead. See Fig., page 25, and sketch a diagram with every ship on a W. S. W. course, also the leeward ship of the starboard wing brought by the wind W. N. W., and it will be evident that no time or space will be lost by any one ship, but that all should arrive in position at exactly the moment for bringing to.

The manœuvre for the other line of bearing is similar.

From the Orders of Sailing, to the Order of Retreat:

From the first order, the leader runs off four points large, followed by others, until the centre ship reaches the bearing up point.

From the second order, run before the wind, sailing the outer ships faster than the inner ships or than the centre one, until the proper lines of bearing are reached, when all sail together.

From the third order, proceed in the same manner as in the preceding case, so as to invert the angular shape. From pointing to leeward, it must be brought to point weatherward.

From the Order of Convoy, to the Order of Battle:

When the ships are before the wind, the leader of an outside column hauls by the wind, the remaining ships of that column following in succession as they reach their leader's wake; and the ships of the other columns, first the leader, then the others, also come by the wind as they successively arrive in wake of those already on the line of bearing. In this manner, the three columns are reduced to a single line ahead.

If the columns are steering with the wind two points

on the quarter, by hauling the leaders on a wind together they will be on a line of bearing; and the intervals between them will be filled by the other ships of columns, as they successively reach the line, and bring by the wind.

But it is apparent enough that this method of performing the manœuvre is impracticable, unless the distance apart of the columns is nearly equal to their length, for otherwise the leading ship of the middle column, when by the wind and standing on, will foul some one rearward ship of the first column. There will not be room in the line between the leaders for the remaining ships of their columns. Usually, owing to the nearness of the columns, this difficulty will be encountered; in which event, the remedy suggested is for the rearward ships of the columns, when they approach the line and discover a want of room, to come at once by the wind together, and stand on singly, until gradually the line may open and receive them in their appropriate places.

If the wind is three or more points on the quarter, or abeam, the leaders of the three columns haul by the wind together; the remaining ships follow in succession their respective leaders. This will bring the three columns parallel, on lines of bearing. The lee column then holds steerage way, whilst the centre and weather stand down and successively gain position ahead and on a line of bearing with the lee column, bringing the whole into one line, which then closes and completes the manœuvre.

This is difficult, and needs to be sketched in all its varieties. It will prove a capital exercise of a student's tactical ingenuity.

To change from any of the orders to the first order of sailing, is the same as to change from them to the

order of battle; except that the order of sailing is not of necessity closed, but may be open.

To change from the first to the other orders, is by a process the reverse of that for changing from them to the order of battle.

With this key, the student may readily, or with no more difficulty and application than it is best he should subject himself to, work out the various additional cases put of changing fleets, which additional cases are mainly as follows:

From the first to the fifth, on the present line of bearing, forming on the van division; the same, forming on the centre; the same, forming on the rear: on the other tack, by tacking when ships will stay, and by wearing when they will not, with the van forming the weather column; the same, with the rear forming the weather column; and these in their several varieties.

From the first to the third; the second to the fifth; from the third to the first; from the fifth to the second; from the second to the third, and from the fifth to the first.

When these cases shall have been worked out as is conceived by the best methods, opportunities may offer of comparing them with those prescribed. The exercise will prove useful in giving a clearer appreciation and understanding of those prescribed methods.

Cases of "inverting" and "interchanging" are not considered, because scarcely falling within the plan of this work; but principally for want of cuts, without which, explanations of such cases are almost useless.

Some modification of practice is growing out of experience with fleets propelled by auxiliary steam power. But this modification must relate principally to the order of battle, for steam fleets will reserve their fuel,

and, cruising under canvas, adhere to the orders of sailing.*

And even if fleets ever become composed wholly of steamers, as with us under an anti-colonial policy they may not soon, derangement of machinery, or want of fuel, will in many, perhaps most instances, give to such fleets practically a mixed character—that is, render some dependent on sails alone, and therefore cause the whole to adhere to the sailing order of battle.

Hence, it is not proper or safe to drop the study of sailing tactics, either in reference to the orders of sailing or of battle, and to regard them as obsolete. The day on which they can be so considered with propriety, may still be distant.

Yet it is not at all unlikely that the ultimate policy in composing fleets, will aim to assign to them, as component parts, a basis of heavily-armed “screws” with steam power sufficient to control position, but with no reference beyond that to speed; and a flying division, with great speed and peculiar battery, say like the new gunboats under construction—bearing in mind that every ton of displacement used for steam power, diminishes by so much the capacity to sustain an armament, and that fighting power, not fleetness, is the main element sought.†

Such a composition of the fleet, corresponding with the various “corps” for heavy work, and for rapid movement, which characterize an army, with the same purpose which such an army organization has in view, would alter, and will alter, the whole style of naval

* Since these sheets were taken to the publisher, the author has had the gratification to meet with Sir Howard Douglas’ work on “Naval Warfare with Steam,” in which he dwells upon the necessity of a thorough comprehension of sailing tactics, before his proposed system for steam fleets can be understood.

† France gives higher speed to her screws of the line than either the Americans or English. In this she is true to her traditional policy of maintaining a dispute of power on the ocean, by cherishing the ability to avoid decisive engagement.

warfare ; and to handle this combination with skill and success on the water, will admit of no diminution of the genius or the cultivation, which rendered the ancient system successful in the hands of the Hoods, Nelsons, McDonoughs and Perrys, of anterior wars.

But whatever is to be the constitution of the future fleet, it must not be forgotten that, from the days of ancient Rome to those of modern England, from Actium to Lepanto and Trafalgar, the empire of the world has depended upon and followed, and has been lost and won with, the empire of the seas ; and that this empire always has been, and always will be, contested with large fleets, little influenced by the guerilla fighting of single ships. Comprehensive minds, therefore, in devising naval construction, will look to such a combination of ships as shall produce the most effective fleet in this great contest for dominion which must one day come off—none can tell how soon. Not that fleets should be held in preparation, or even constructed, for so indefinite an event ; for it is idle, as it is unreasonable, to look in a continental nation as the United States, for the living perpetual interest and favor with which an insular people, like those of Great Britain, cherish their wooden-walled defences, and patiently endure the burdens they entail. But such a degree of experimental construction as will determine the best types, is judicious ; because with men, money, and material at command, it renders the problem of sudden and indefinite increase in the number of ships, of easy and safe solution in the event of war. And however politic or fashionable it just now is to laud the actual construction in France as evidence of her comparative naval strength, it is in reality *resources* for building, equipping, and manning ships, in which England vastly excels, that gives to her, or to any nation possessing them in the greatest degree, a true and actual maritime ascendancy.

SECTION II.

OF ENGAGEMENTS UNDER SAIL.

WHEN an engagement takes place, it is usually brought on by an attack from the fleet to windward, made sometimes through a desire to engage, and sometimes because an action, if at all avoidable, is no longer so with advantage.* The fleet to windward may be considered as usually in position for exercising its choice whether or not to fight, as well as for selecting the time and mode of attack, for which reasons the weathergage is often most perseveringly contended for, but as often to avoid as to make the attack. In the British and French naval operations of the last hundred years, the latter, a chivalrous yet not so decidedly a maritime nation, appears from policy to have adopted the practice of gaining the wind to avoid decisive engagement; and the former, for very obvious reasons, the reverse—that is, for position to attack. Each nation knew well its resources for repairing maritime disaster, and exposed itself with caution or otherwise, accordingly. In future wars, similar considerations will undoubtedly govern;

* Fleets often chase to windward in line of battle, and crossing on opposite tacks, the head of the chasing fleet may, by wind favoring or faster sailing, threaten to cut off the rear ships of its enemy; or the chasing fleet may detach a squadron of its fastest or most weatherly ships to harass or cut off the enemy's rear; in either of which cases the weather fleet, through solicitude for its rear, is sometimes obliged to engage when otherwise indisposed.

and that nation, as for example the United States, with greatest resources in material, men, money or credit, and least encumbered with debt or other drags, may probably benefit most by a system of operations bordering rather on rashness than caution.

OF THE WEATHERGAGE.

When a mutual determination to engage exists on the part of belligerent fleets, whether the advantage is in favor of the weathergage with its obligation to attack, or of the leegage with the privilege of awaiting the attack, is a question long discussed by naval men. The attack has for its advantages, 1st, power to concentrate the entire force (commonly called "doubling") on an unindicated portion of the enemy's line, which, thus overmatched, may be subjugated, without in return inflicting corresponding injury; 2d, power to cut through between enemy's ships in line (commonly called "breaking the line"), rake them in passing with both broadsides, then luff and engage close on their lee. But on the other hand, the attack is forced to encounter the serious disadvantage of a destructive cannonade during the approach, partially or wholly unable to reply.

Tactics counsel for the attack boldness and all possible speed in closing; for the defence, wariness to penetrate and foil the adversary's design, and to prolong his approach by every legitimate expedient. With due observance of this counsel, with equal perception of accidental advantages, equal skill and equipment, leaving out of view *the moral influence always in favor of the attack*, probably neither the attack nor the defence pre-

ponderates in advantage so greatly as to warrant much effort, or any sacrifice, to gain or to avoid the weather-gage. The English seem to have set highest value on the attack; the French appear to have preferred the defence—that is to say, the French sought the weather-gage, as before remarked, when desiring from motives of policy to avoid action, but never when really intending to engage; which justifies the inference expressed, that they preferred receiving to making the attack—in other words, the defence to the attack. But it is to be observed, that this preference was manifested before the practice of breaking the line, or of doubling, became common. Afterwards, it might in time have been abandoned.

•

OF THE ATTACK FROM TO WINDWARD.

This is made by bearing down upon an enemy in one or more columns ahead, or lines abreast, or in some degree lateral, usually on a perpendicular to the enemy, because that is in general the shortest, quickest approach, and sometimes in columns obliquely, for the sake of giving a return fire from a portion of the broad-side guns trained sharp forward, and to avoid being raked fore and aft. The most successful officers, as Howe, Duncan, and Nelson, practised the direct or perpendicular approach, whether in column or in line. Lord Howe, in June, 1794; Duncan, at Camperdown, in 1797; and Nelson, at Trafalgar, in 1805. On the other hand, Byng, off Minorca, in 1756; Graves, on the American coast, in our Revolutionary war, 1781, and others,

have practised the oblique attack, in column, but with little if any success.*

When the attack is made in columns ahead, whether directly or obliquely, the leading ships are exposed to a concentrated fire in the approach, and may very likely be disabled or destroyed; but the ships in rear of the leaders may be supposed to escape damage in a corresponding degree. A greater evil of this mode of attack is, that ships thus in column ahead, coming one after another into action, are exposed to be cut up in detail. But when the attack is made in line abreast or lateral, all the ships receive equal attention during the approach, hence they suffer equally, and closing together afford mutual support.

On the occasions mentioned (as will be shown hereafter more fully), Nelson went into action in columns ahead, and experienced the evils indicated; that is, the leaders received the concentrated fire of several ships, and were a considerable time in action unsupported—a matter of not much moment between an English fleet led by the great captain, and a dispirited, unpractised enemy, just out of port, and bent as he thought on escaping rather than fighting. With a different sort of adversary, Nelson's tactics, might have been more circumspect.

So Byng and Graves each attacked in column, with similar experience. Lord Howe, on the other hand, attacked in line abreast, kept very exactly dressed in line, so as all to engage with broadsides simultaneously. His victory was indecisive, but his loss not great. Duncan, in his action, bore up to the attack in a rather ir-

* These cases are selected from many as examples. The dates are given, that reference to history may be made, as it should be for further and more thorough study of the questions raised, or principles discussed. But these and other actions will be analyzed further on.

regular line abreast, before a fresh wind, each ship carrying all convenient sail; some were in action, of course, a little earlier than others, yet so as to give mutual support; each steered steadily for its designated opponent, broke through the line astern of her, raked and closed to leeward, affording altogether one of the finest illustrations of a well-planned, dashing attack, gallant action, and brilliant result on record.

The attack has not always availed itself of the advantage of cutting through the line and raking, but has sometimes brought by and engaged to windward. The two methods have each their advocates.

Those who would break through and engage to leeward of their opponent, argue that, besides the advantage of a raking fire from both broadsides in passing through to gain the lee, it is possible to close to leeward nearer and with less risk of falling on board, and that in a rough sea they can fight the weather lower deck guns when the enemy might not be able to open his lee lower ports; their crippled ships being to leeward, may drop out of action, whilst his drop into their hands; nor can he escape, as they may, by bearing up out of action if worsted.

Those in favor of bringing by and engaging to windward of their enemy, urge, on the other hand, that if he closes his order to half a cable or less, they might not be able to cut through even if desiring it; his vision is obscured by their smoke as well as by his own, and his fire, in consequence, proportionally uncertain; he is most exposed to be set on fire by their wads or other burning fragments; and if perforated by shot near the water whilst heeling much, he may founder if obliged to bear up, or sail on the other tack to escape.

The argument preponderates undoubtedly in favor

of cutting the line and engaging to leeward. And history sustains this view, for it discloses no instance in which this manœuvre, when completely executed, has failed of success; which uniformity of result may, in a great measure, be attributed to the double force of both broadsides brought for the moment into use, and the destructiveness of fire arising from proximity and a raking position, whilst cutting through.

Concentration of the whole attacking fleet, or doubling, upon a portion of its enemy, as is most common on the centre and rear, with the purpose of leaving the van, at least for a time, out of action, though not always practised, is one of the advantages legitimately belonging to the attack. One of the most successful examples of this manœuvre is afforded by the battle of Trafalgar, in which one half the English fleet, led by Collingwood, doubled upon the rear third of the combined French and Spanish fleet; whilst Nelson, with the other half, doubled upon the enemy's centre third, leaving its van out of action. This van escaped, though inexcusably, as by tacking for the scene of close action, it might have arrived back at the centre, and joining with it, doubled upon Nelson—that is, brought two-thirds of the combined fleet, its van and centre, against Nelson's half of the English fleet.*

In exemplification of what has been said of the attack from to windward, the actions of Byng, Graves, Howe, Duncan, Nelson, and Perry, will be briefly sketched, and in some measure discussed.

Sir John Jervis's action off Cape St. Vincent, and

* This will be made more fully to appear in the analysis of Trafalgar and Rodney's battle. One other consideration will also appear, viz., the strange omission to observe, what should never be overlooked or forgotten, that the doubling of fleets is "a game which two can play at," and like most other games, very easy with an unpractised, unskilful opponent, but not without hazard to the assailants when the parties are fairly matched.

Rodney's victory in the West Indies, also analyzed and discussed, will serve to illustrate cases in which neither party has the wind of the other.

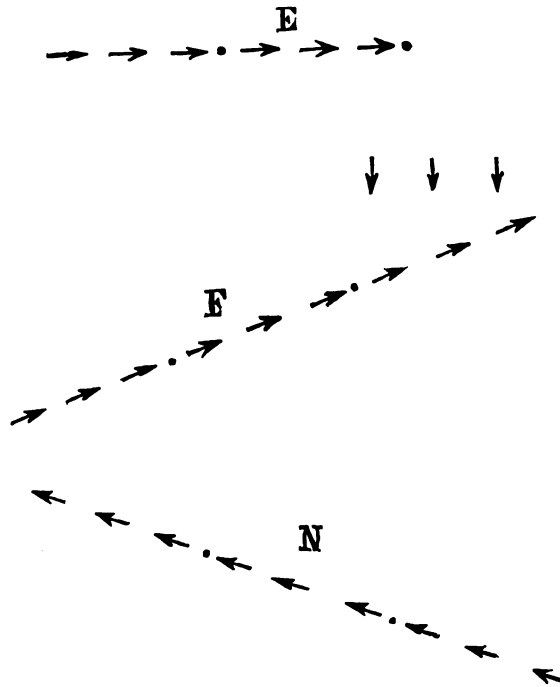
After having gone through with those discussions, it is recommended to reperuse what precedes in this section, when its force and meaning will become more apparent.

BYNG'S AND GRAVES'S ACTIONS—ILLUSTRATIVE OF THE OBLIQUE ATTACK.

Admiral Byng's attack upon a French fleet off Minorca, in 1756, during the seven years' war, reign of George II.; and Admiral Graves' action with the French in the Chesapeake during our Revolutionary war, year 1781, illustrate the oblique attack and its ill success.

Byng, to windward, in the centre of his fleet, steered it with some degree of obliquity in column ahead towards the van of the French, drawn up in line of battle to leeward. When he had reached a position opposite the enemy, but beyond effective engaging distance, signal was made, in obedience to which the British van division alone bore up together and closed. This movement, unsupported by the rest of the fleet, subjected the portion of it thus engaged to an overpowering raking fire from a superior force, by which it became crippled or destroyed without inflicting any considerable injury in return. The French then "wore in succession, beginning at the van," each ship as it ranged past the crippled English gave them a broadside, and the whole re-formed in line of battle on the other tack to receive a second approach, which was now found impracticable.

In the figure following, E represents the English centre and rear divisions on the oblique approach, and the van division standing down abreast on the perpendicular for close action with the French, F, in line of battle to leeward. N is the new French line, as it reformed on the other tack, after having disabled the English van by a destructive raking fire.*



Minorca was lost to England by the failure of this attack, and Byng himself tried and shot; not for cowardice, of which he was expressly acquitted, but professedly for not doing his utmost to destroy the enemy

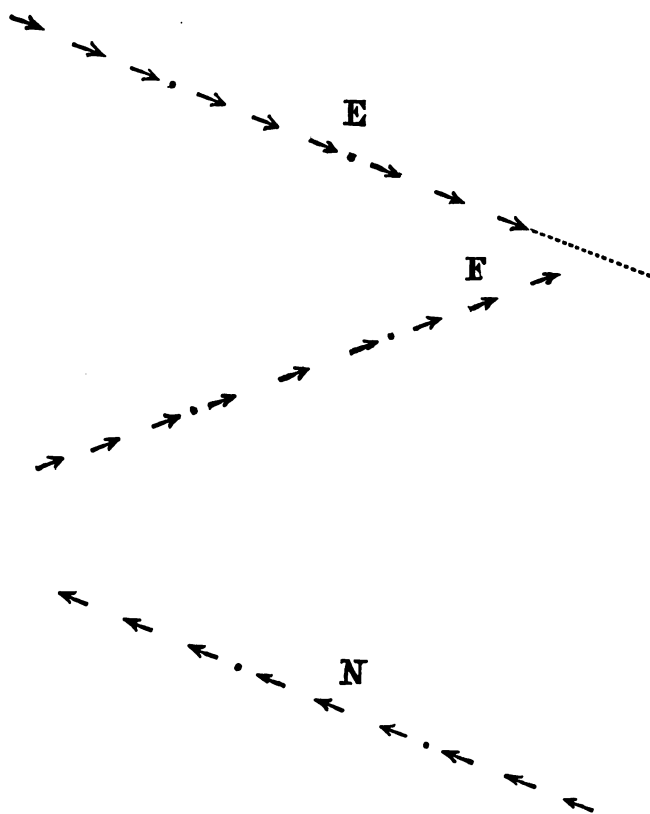
* In this and in subsequent diagrams, the wind is presumed from the top of the page. A dot separates the centre from the van and rear divisions, and whatever may have been the actual number of ships engaged, three are given in each squadron or division of this and other illustrations.

—in other words, for lack of skill or judgment, shown by exposing his ships unnecessarily to destruction in detail. In reality, he is supposed to have been executed to appease an enraged public. His error was undoubtedly egregious, in permitting his attack to become partial, when, having the wind, it was in his power to have made it general.

After having, by an oblique approach, brought his van within range, and caused it to bear down, as represented in the Figure, upon the head of the enemy's line, the Admiral's idea seems to have been the precipitation of his centre and rear, successively with the van, upon the same point of attack, each division bearing up together as it reached the wake of the van, which, as a forlorn hope, by receiving the fire, engaging attention, and causing smoke, was to screen the approach of the remainder.* But collision among the ships of the centre delayed its movement; the Admiral's attention was absorbed by the incident; the rear ships waited for orders to break out of line and bear down, which they did not receive; the French eluded Byng's design, the precious moment for carrying it out was lost, and with it the day, his life, and his reputation. As an instance of diversion of an admiral's attention by minor circumstances (such as the collision) from the extended field which should engross him; and again as a case exhibiting want of decision, and of prompt, seasonable action, it affords an instructive lesson. A single spirited officer in the rear to correct the Admiral's error or oversight, or to supply his omission, by anticipating the signal proper for the occasion—as Nelson afterwards did at Cape St. Vincent—might have saved all.

* This intention of the Admiral's is nowhere explicitly mentioned, but it is not easy to reconcile all the facts in the case on any other theory.

Admiral Graves bore down and attacked the French fleet in the Chesapeake bay, by an oblique approach in column ahead, but in a manner which engaged the whole English line—the rear very distantly—though exposing the head of it most to the enemy's fire. Hence the French, having inflicted far more injury than they received, wore round out of action, and re-formed to leeward for the purpose of again receiving the attack. The English were not in condition to repeat it, but sought a northern port for repairs, leaving the French dominant in the southern waters of the United States, and the cap-



ture of Lord Cornwallis's army at Yorktown, and the American Independence, were the immediate consequences.*

In the Figure on the preceding page, E is the English fleet steering in column ahead, wind two points abaft the beam, for the van of the French, F, in line of battle. N is the new French line re-formed on the other tack.

In this approach, the English van ships, when only their bow guns bore, were exposed to a severe diagonal fire from the broadsides of the French van ships, as will appear by inspection of the figure; and this diagonal fire is nearly as destructive as a raking fire; for although each diagonal shot may be less effective than each raking shot, yet because of the larger surface exposed to the diagonal fire, a greater number of shot take effect.†

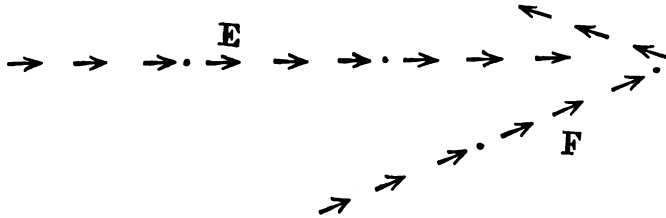
This approach was at an angle converging four points at the least with the French, provided they were close-hauled, but with less convergence if off the wind. The question arises, why not have converged less, or even ranged up nearly parallel with the enemy in attacking? The answer is, because with a less convergence, or if nearly parallel, the van of the lee fleet, by opening and tacking in succession, might weather upon the van of the attack, and place it between two fires.

Thus, in the Figure following, suppose F, the lee fleet, close-hauled, receives an attack from an enemy E, approaching with a degree of convergence less than four points. The van of F has tacked, and E finds its van weathered and between two fires, or doubled. This, it is apparent, could not have been, had E, steering for the

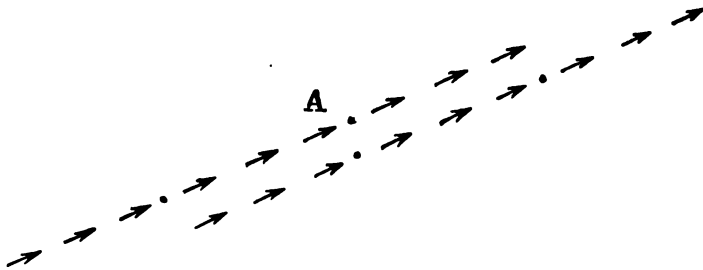
* This action, productive of so great results, was fought in September, 1781, and is not to be confounded with Arbuthnot's battle of March, in the same year, fought also in Chesapeake Bay.

† This supposes heavy calibres, sufficient to give their shot penetrating power to go through ships' sides when striking them obliquely.

head of the enemy's line, approached with a greater angle of convergence than four points with the line of bearing on which F formed the line of battle. But E's remedy by luffing, if practised in season, is apparent enough; in which event, F's van would need extrication from difficulty.



It may be said that this reasoning is not sound in case of such a state of the wind or sea as would prevent the lee ships tacking to double, and that under such circumstances the convergence of the approach might be reduced. Suppose it reduced, or to be parallel even, and that the attacking fleet to windward ranges up from astern, within engaging distance, parallel with its enemy, as in the figure following, where A represents the attack, with its leader past the enemy's rear and centre.*



Supposing (as is not likely to occur) the lee line adheres to its position as represented in the figure, its

* In close order, awaiting attack as here represented, the helm is not put down, heaving the ships to, but way is reduced by backing a sail; or if large, bracing by; provided steerage is in all cases preserved.

rearmost ship has encountered the fresh broadsides of (in this case) six van and centre ships of the attack which have passed it, and may be presumed seriously damaged by them, if not disabled. So the leader of the weather or attacking fleet, having passed and encountered the fresh broadsides of (in this case) six rear and centre ships of the lee fleet, may be likewise supposed disabled. All the ships of the weather attacking fleet engaged, are probably in a damaged condition like their leader, only in a less degree in proportion as less engaged; so also the ships of the lee fleet engaged, are probably in a damaged condition like their rearmost ship, only in a less degree in proportion as less engaged. But whilst the disabled ships of the attacking fleet to windward could not in this case drop out of action, those disabled in the lee line might, and probably would, drop to leeward, singly or together as previously concerted; provided the attack should unskilfully neglect to prevent this, by placing a portion of its fresh rear ships, as they arrived up, to leeward of the enemy's rear, which by that movement would be at the same time doubled. This very danger to the rear of being doubled, would naturally deter any commander from awaiting an attack from astern, which would so seriously expose that extremity of his line. Hence it may reasonably be inferred, that an attack from astern, parallel or with small convergence, would scarcely be meditated except in a chase; and if attempted, would scarcely be permitted, unless unavoidable; or if permitted, not without tacking back the van to double the enemy's van, or wearing back the van to protect the rear, doubled as it might probably be. All this, however, is only speculation, and each reader will make his own conclusions, which may or may not correspond with those here expressed.

Sir Robert Calder, in his action with Villeneuve, off Ferrol, in July, 1805, according to the accounts of both collated (see Brenton, vol. ii., pp. 22 and 25), chased the combined French and Spanish fleet to windward, on the same tack, and attempted, having overtaken their rear, to "place it between two fires;" which design the French Admiral intimates he frustrated by wearing back his van—the very plan considered in this discussion.

In Graves's action, as readily appears by reference to that diagram, p. 58, the French, when the English van had come up with theirs, were compelled to the manœuvre of wearing and re-forming; for had they continued on the port tack, whilst the English stood on in the direction of the dotted line of the figure across the French van, it would have been destroyed. And had the French kept off in succession as they were successively closed with by the English, and run four points large parallel with them, each ship engaging as she kept away, even then the French would have been in effect doubled, in consequence of the greater speed of the English, who, steering large with way on, would have exposed each French ship, whilst keeping off and gathering way, to the fire of possibly two passing English ships, before the former could gather speed enough to hold way with the latter. By wearing and re-forming to leeward, therefore, the French seem to have adopted the only expedient by which to avoid sacrificing the advantage they had already gained. This, also, is but speculation; and the reasoning may be defective, inasmuch as it assumes the British van not to have been seriously crippled in spars and sails, therefore capable of rapid way. The probability is the reverse, and that the damage was so great as to check progress in the English van, consequently produce crowding, collision, and

confusion in the centre and rear, and derangement of the whole British line. All these evils are inherent to the oblique attack, which history, it is believed, stamps with uniform failure.

What is called "a stand-up fight," is often flippantly spoken of as preferable. In many cases, with equal forces on both sides, it undoubtedly is; as it is also more characteristic for seamen, instead of dodging about after this or that advantage, to go square and fair directly to the work. "Taking the bull by the horns" is the favorite phrase, though that depends some on what sort of horns they are—how long and how sharp. But as Rodney, Nelson, and most if not all eminent commanders have not disdained an exercise of skill, usually termed strategy, in pursuit of advantage, their example should silence cavillers. Furthermore, the investigation of history demonstrates that but few engagements, decisive in their effects, have taken place on sea or land, which have not been rendered so in a considerable measure by strategic combinations; for when a victory claimed has been produced by hard fighting only, it will be found to have cost so dearly as to leave a net result little or no better than a drawn battle.

Hence the habit of discussing the most advantageous modes of attack and defence, is recommended as a useful exercise, in preparation for the serious responsibilities to which any one in the naval career is sooner or later liable.

* With steam, the facility for manœuvres has become so increased as greatly to enhance their importance in determining the result of an engagement. But as officers, notwithstanding steam, must still be seamen, and understand the art of manœuvring a single ship under canvas, so also must they continue to study the art of manœuvring an assemblage of ships under canvas—in other words, Naval Tactics as here presented. And on the contrary, when officers need no longer be seamen, neither will they need any longer to understand tactics under sail.

BATTLE OF TRAFALGAR—ILLUSTRATIVE OF THE
DIRECT ATTACK IN COLUMNS.

A combined French and Spanish fleet, commanded by the French Admiral Villeneuve, consisting of thirty-three sail of the line, had been assembled at Cadiz, as was supposed for the ulterior purpose of controlling the British Channel, and facilitating the invasion of England, then a favorite project of the Emperor Napoleon. The activity of English cruisers had blockaded the port of Cadiz against ingress of supplies, and it became evident that the fleet would in consequence need to change its rendezvous, even if not sailing with other objects. To encounter this fleet at sea on its passage, and according to England's favorite plan catch it just out from port, with many sea-sick landmen, and the seamen even, both officers and others, measurably untrained, at least unfamiliar yet with their duties, Lord Nelson was despatched from Spithead, in September, 1805, with a force which, when united to that already off Cadiz under Admiral Collingwood, would number twenty-seven sail. Nelson concealed his personal arrival, as well as that of his reinforcement, by keeping far at sea, suppressing salutes, and every other indication. This sagacious policy drew out the combined fleet, which otherwise might have somewhat prolonged its stay.* It sailed from Cadiz on the 19th of October.

* Villeneuve's orders to sail were from Paris, and peremptory—probably dictated by Napoleon himself, then entering Germany. Both the Admiral and his officers, it is believed, sailed and fought against their better judgment, feeling their real inability to meet the English at sea successfully on equal terms, yet hoping to find them inferior in force. Villeneuve afterwards committed suicide, under depression produced by the Emperor's displeasure.

When the combined fleet sailed, no one could reasonably conjecture its destination. It is known that just then the army of England, as that assembled and exer

In anticipation of battle, Lord Nelson issued his celebrated General Order of the 18th of October, which not only contains full instructions for every possible contingency under which the hostile fleets might meet, but is remarkable as being in itself a compendium of the whole science of attack. No better service can be rendered the naval student, than to place within his reach the order entire; nor, indeed, without it, can a clear and adequate idea be gathered of the plan of the action which ensued, or the manner of its execution.

[GENERAL ORDERS.]

“VICTORY, OFF CADIZ, Oct. 18, 1805.

“Thinking it almost impossible to bring a fleet of forty sail of the line into battle in variable winds, thick weather, and other adverse circumstances likely to occur, without such loss of time that the opportunity would probably be lost of bringing the enemy to battle in a manner to make the business *decisive*, I have made up my mind to keep the fleet in that position of sailing, that the order of sailing is to be the order of battle, placing the fleet in two lines, sixteen ships in each line, with an advanced squadron of eight of the fastest sailing two-decked ships; which eight ships added, if wanted, to either of the two lines, as the Commander-in-chief might direct, would swell that line to twenty-four ships.

“The second in command [Collingwood] will, after my intentions are made known to him, have the entire direction of his line to make the attack upon the enemy, and *follow up the blow* until they are captured or destroyed.

“If the enemy’s fleet *is seen to windward* in line of battle [this contemplates an attack from to leeward], probably it will be so extended that its van could not succor the rear. Probably, there-

cised at Boulogne was called, had been rapidly carried on wheels across a neutral territory to Ulm, where it began the Austrian campaign of 1805. Whilst there, Napoleon heard of Villeneuve’s defeat. Probably the Emperor meant, by ordering him to sail and fight, in case of his success and consequent command of the Channel, to return to Boulogne as rapidly as he had left it, and attempt the invasion of England, abandoning the Austrians. Failing in this plan by the defeat of Villeneuve, he proceeded to Vienna instead of London. Thus the “wooden walls” of England saved her capital; more properly, perhaps, the sacrifice attending even a successful land defence.

fore, provided the two lines and the advanced squadron could fetch, [the hostile fleets crossing on opposite tacks], I should attack the rear, by making the second in command a signal to lead his line through the enemy's, at about the twelfth ship from its rear, or wherever he could fetch, if not able to get so far advanced. My line would lead through about the centre, and the advanced squadron two or three ships ahead of the centre, so as to insure getting at the enemy's Commander-in-chief, whom every effort must be made to capture.

"The impression of the *whole* British fleet must be made, with the intention of overpowering it, on that *portion* of the enemy's line rearward from the third or fourth ship ahead of its Commander-in-chief, presumed to be in the centre. I will suppose the twenty enemy's ships ahead of this point in the line to remain untouched. It would be some time before they could manœuvre to bring their force compact to attack any part of the British fleet, or succor their own rear, and it would be impossible without mixing with the ships engaged. [Well! pray if one party mixes, doesn't the other get mixed? Whatever the evils, certainly they attach equally to one party as to the other. One loses patience with the idea that all evil is on one side, an idea which seems to have always engrossed both the English and their European enemies.]

"The enemy's fleet is supposed to consist of forty-six sail of the line; British forty; * if either is less, only a proportion of the enemy to be cut off; something must be left to chance; nothing is sure in a sea-fight, beyond all others. Shots will carry away masts and yards of friends as well as foes; but I look with confidence to a victory before the van of the enemy could succor their rear, and then that the British fleet would be ready to receive the twenty sail of the line, or to pursue them should they attempt to make off. [The van of the combined fleet, by tacking *together* and standing back, could have afforded ready succor, but not by *leading* back in succession.]

"If the van of the enemy tacks to stand back and succor its rear, the captured ships must run to leeward of the British fleet; if the enemy's van wears back instead, the British fleet must place itself between the enemy and the captured and disabled ships; and should the enemy close, I have no fear as to the result. The second in command will, in all possible things, direct the move-

* There is in the order an inaccuracy as to the number of ships. So many were not in the engagement on either side.

ments of his line by keeping it as compact as the nature of circumstances will admit. Captains are to look to their particular line as a rallying point; but, in case signals cannot be seen or clearly understood, NO CAPTAIN CAN DO WRONG IF HE PLACES HIS SHIP ALONGSIDE THAT OF AN ENEMY.

"If the enemy's fleet *is discovered in line of battle to leeward* [this contemplates an attack from to windward], the divisions of the British fleet will be brought nearly within gunshot of the enemy's centre [in parallel lines, Nelson's to windward, Collingwood's to leeward]; the signal will most probably be then made for the lee line to bear up together, to set all their sails, even to their steering sails, in order to get as quickly as possible to the enemy, and to cut through, beginning at the twelfth ship from the rear. Some ships may not get through at their expected place, but they will always be at hand to assist their friends; if any are thrown in the rear of the enemy, they will complete the business of the twelve sail of the enemy; should the enemy wear together, or bear up and sail large, still the twelve ships composing the rear of the enemy's line in its original position are to continue the object of attack of the lee line of the British fleet, unless otherwise directed by the Commander-in-chief, which is scarcely to be expected, as the entire direction of the lee line (after the intentions of the Commander-in-chief are signified) is intended to be left to the Admiral [Collingwood] commanding that line.

"The remainder of the enemy's fleet (thirty-four sail of the line) is left to the management of the Commander-in-chief, who will endeavor to take care that the movements of the second in command are as little interrupted as possible. *

"NELSON AND BRONTE."

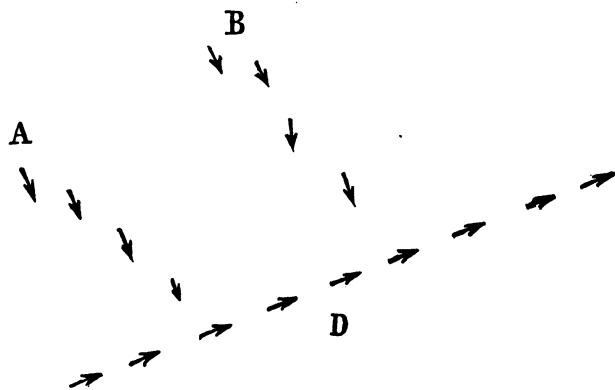
The order manifests, first, a conviction justified by antecedents, that the enemy would elect to receive, not make the attack; second, a determination not only to make it, but to render it decisive by a union of strategic skill, of energy, and of perseverance—marking out twelve specific rear ships to which Collingwood should

* Nelson also guarded his ships from mistaking one another for enemy's, by observing how the masts of the combined fleet were painted, and giving his a different color, also painting the hoops distinguishably.

adhere, with unremitting pertinacity, under all changes and chances, until captured or destroyed, whilst intimating a determination on the part of Nelson himself, to take care of the centre division; and, third, most efficacious provision against a successful performance by the enemy of its favorite manœuvre, of wearing or edging away, to prolong the approach or avoid decisive engagement. And although the battle which followed is criticised as one rashly conducted at the beginning, and proving successful only because of the enemy's imbecility, no want of circumspection, or of adaptation to any enemy, however matched with the assailant, characterizes the order. As the summing up of a "great master of the art," made at the close of a life unparalleled in experience, it constitutes an invaluable legacy, if only for instruction, and in that aspect its introduction entire is eminently appropriate to the purposes of this manual.

The hostile fleets met on the 21st of October; the wind was light, the English had the weathergauge; and the combined fleet in a single line of battle, formed very close, awaited the attack.

The plan chalked out by Nelson was in all respects



carried into execution, except that owing to the light wind, unequal sailing of the ships, and eagerness of all, each one carrying a press of sail even to steering sails, the prescribed lines abreast fell gradually, perhaps imperceptibly, but through no design, into irregular straggling columns ahead, as represented by A and B of the preceding figure—D being the enemy's line of battle.

The two admirals got the lead of their respective columns, a circumstance somewhat unusual, and a deviation from the ordinary practice which places commanders in the centres of their divisions. Each of the admirals, more especially Collingwood, was many minutes in action wholly unsupported, receiving the entire weight of the enemy's fire which could be trained on him as a focus; and that both were not disabled, is evidence of great inefficiency of battery, or of wretched gunnery.

The story of the battle is short and soon told. The columns led down, Nelson's for the head of the centre, Collingwood's for the head of the rear division of the combined fleet, which was so compact, that Captain Hardy of the *Victory*, Nelson's flag-ship, objected when ordered to cut through, that there was no opening sufficient, and if attempted it must be with the risk or certainty of falling on board. "I cannot help it," was Nelson's reply. "Then you must fall on board. Make your own selection." Hardy went through. Collingwood experienced similar difficulty, but also went through, as did some more of each column. Others, again, engaged to windward. The enemy's van, left wholly unoccupied, mostly escaped, instead of tacking or wearing back to the rescue, by which Nelson's line would have been doubled upon; though it will appear that a few did return, yet very tardily; and when they returned, the error committed was in following a leader

back in succession, instead of each ship tacking and making singly for the scene of close action.

The battle began at 11 30 A. M., by a fire upon Collingwood. At 1.30 P. M. Nelson fell mortally wounded by a musket ball from the enemy's "top," and expired three hours after, five hours from the commencement of the action, of course long after the plan and mode of attack had become apparent. Yet it was only at a point of time fixed by this event, after five hours' engagement, that five ships of the enemy's van appear to have returned in aid of its discomfited centre.

The ships of both fleets became, in the course of the contest, very much mingled in close action. The English grappled most heroically and pertinaciously with their foe, falling on board some, and engaging others at the muzzles of the guns. Nor did the French and Spaniards, when once engaged, fail to fight with the most unflinching determination, so far as personal effort was concerned. But being unequal to the English in equipment and in nautical skill, as well as in that familiarity with the sea which gives readiness of resource in emergency, such as arises of all places most in action, they experienced a most signal and annihilating defeat. Nineteen sail were captured or destroyed, the remainder escaped into the port of Cadiz, five leagues distant, in the N. E. quarter, the wind being west. *

* Collingwood's official report of the action, especially the second paragraph, which describes the mode of attack and of defence adopted, and the third paragraph, which describes the execution and result, are models, and among the few reports which, in the compass of an official document, intelligibly portray a battle, —See Brenton, vol. ii. p. 76.

The chequered aspect and crescent form, which Collingwood speaks of as that presented by the line of the combined fleet at the moment of attack, proved on investigation to be only an irregularity into which it fell, almost unavoidably, in the light wind which prevailed, and during the many hours which had elapsed after the line formed.

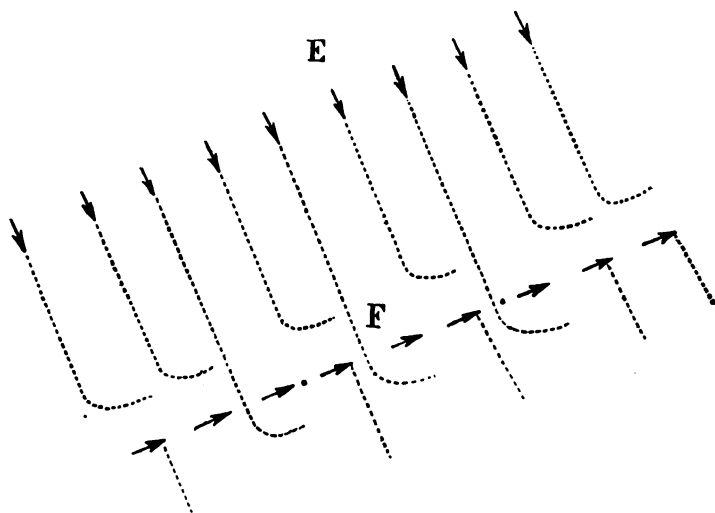
LORD HOWE'S AND DUNCAN'S ACTIONS—ILLUSTRATIVE
OF THE DIRECT ATTACK IN LINE.

The first, called usually the battle of 1st June, was fought in 1794, on the Atlantic, between a French Revolutionary fleet of twenty-six ships, and a British fleet of twenty-four sail of the line. Lord Howe, being to windward, made his dispositions to attack in very exact line abreast, his fleet being drawn up parallel with the enemy, who awaited to leeward in line of battle on a line of bearing. The English steered down in a direct attack, on the perpendicular, each ship for her designated opponent, the Admiral's intention being that all should cut through the enemy's line nearly together, rake with both broadsides in passing, and engage to leeward. Lord Howe himself, and a few others, succeeded in this intention; but most of his Captains failed in it, and brought by, engaging to windward of the enemy, and at exceedingly respectful distances. Although victorious, the result was far from satisfactory or decisive; seven ships only were captured. The French having for the most part an escape open to leeward, eighteen of their ships availed themselves of it, and assembled beyond pursuit to leeward.

The Figure shows the French fleet awaiting attack at F; the English, E, steering down to engage; the dotted lines from the latter show the proportion of them which brought to and engaged to windward of the French, and the proportion which cut through and engaged to leeward. The dotted lines from the French ships, show how those with the lee open escaped.

If it be asked why these French ships which escaped

were not pursued whilst in the act, the answer is, that they easily dropped to leeward, singly, in the dense smoke of close action, produced by one or two thousand guns engaged; under which circumstances, and in the uncer-



tainty of events, it is probable that captains, who in single ship actions would have closely and hotly pursued an escaping foe, may not have felt at liberty on their own responsibility to abandon the line; nor, perhaps, might it have been altogether prudent for any single ship, by pursuit, to expose herself beyond supporting distance to the hazard of capture by a combination of enemy's ships dropped out of the main action. Only a general pursuit seems to be practicable; and Admirals have usually, under those circumstances, erred on the side of caution,* by taking time to repair damage, save their own disabled, perhaps sinking ships, and secure the prizes, rather than on that of boldness

* An example of this caution by Sir Robert Calder off Ferrol, in July preceding the battle of Trafalgar, called down on that officer a storm of indignation from the British public, and occasioned his reprimand by sentence of a court-martial.

in leaving these to take care of themselves, whilst following up a beaten enemy. *

There has been a general complaint, that waste of time in forming for the attack, and want of rapidity in executing it by the Admiral, as well as want of boldness in the performance of their parts by the captains, characterized this action. †

At a later period, both at the Nile and Trafalgar, Nelson lost no time in preparation, and his captains exhibited greater energy, daring, and skill in the management of their ships. Lord Howe was a most precise tactician, and indefatigable in exercising the fleet. His school was therefore well calculated to prepare officers long out of practice during the peace, or originally untrained in this sort of knowledge; and when thus instructed, they became at length most efficient seconds in executing with promptness and vigor the brilliant conceptions of Nelson's genius.

The "Silesian war," ending with the peace of Aix-la-Chapelle, in 1748; the "seven years' war," ending with the peace of Fontainebleau, in 1763; and the "American war," ending with the independence of the United States acknowledged by the peace of Paris in 1783, had kept British naval officers for half a century in constant service. An interval of peace extending through ten years, from 1783 to the wars of the French Revolution in

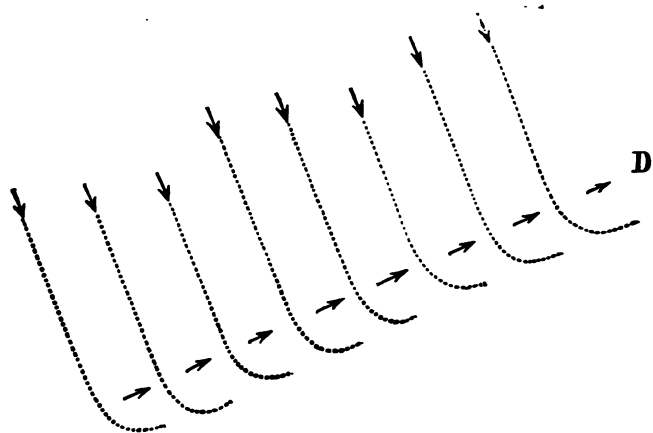
* In consequence of the imperfect support afforded by the British ships engaged to windward, to those which had cut through, the latter were placed in some jeopardy, and an enterprising enemy, when dropping to leeward, would have taken some of them along as prizes.

† No commander-in-chief, on entering engagement with a fleet, can do much more than make his dispositions, plans, and intentions well understood by his captains prior to its actual commencement. After that, in the smoke and confusion of close action, most depends on the individual exertions of captains. Lord Howe, before a shot was fired, closed his signal-book with remarks to this effect, made to his sailing-master; and at Trafalgar, Nelson, immediately after his last and memorable telegraphic signal, when standing down to engage, observed: "Now I can do no more, but must leave all to the Great Disposer of events."

1793, had superannuated many, thrown others out of practice, and brought new men into command. These were difficulties to be met by Lord Howe in organizing the first fleet put in commission for this war; and subsequent commanders were not only free from them, but reaped the full harvest of his laborious work.

Admiral Duncan's action (Lord Duncan in consequence) was fought in 1797 against a Dutch fleet, off Camperdown, coast of Holland. He took little time to prepare, but hastily forming an irregular line abreast, ran down nearly before the wind (then blowing fresh on shore) on a perpendicular, each ship for her opponent; each broke through the line, raking and engaging to leeward, and a most brilliant and decisive result ensued; for, notwithstanding close to their own coast, but few of the Dutch escaped, as it was not possible, engaged as they were on their lee side, that their ships could, in the smoke, drop out of action, as the French had done from Lord Howe in '94.

In the Figure following, D is the Dutch fleet to leeward, in line of battle, on a line of bearing. E is Duncan's fleet, in irregular line abreast, standing down to



attack. The dotted lines show the track of each ship in closing.*

The purpose of presenting in this series of illustrations the actions of both Howe and Duncan, though fought on similar principles, is to exemplify, as they strikingly do, the influence of conduct on the part of individual commanders upon the results; and furthermore, to contrast the possible influence of Lord Howe's excessive exactness in dampening ardor, with the infusion by Duncan of his own headlong spirit into the fleet under his command.

It seems surprising that Duncan's ships so uniformly succeeded in going through. Probably the Dutch formation may not have been so close as it ought. But that fleet was then just out of port after a long blockade, and no doubt in consequence its officers were timid in closing. Besides, longer experience had emboldened British commanders; and the errors, natural under the circumstances, committed by Lord Howe and his officers three years earlier, were avoided.

As regards the damage to which Duncan, approaching briskly, was subjected, it may be estimated that he closed at the rate of eight knots, or 16,000 yards per hour, which is 267 yards per minute. Suppose him to have been opened upon at 1,000 yards distant, and one broadside per minute discharged. At those rates, not more than three broadsides could possibly have been delivered by the weather batteries of the defence; probably, with much time consumed in pointing, only two; and it is quite likely that as many shots would strike in

* It may be useful here to repeat, that at the instant of passing through the line and delivering both broadsides, each ship evidently becomes twice her ordinary force; that is, each fifty-gun ship discharges at the moment as many guns as in ordinary action a hundred gun ship discharges; which is one of the causes why this manœuvre has, it is believed invariably, without an exception in history, been followed by immediate and decisive victory.

the last case of two broadsides with deliberate pointing, as in the first case with rapid firing and less careful aim. If Duncan sustained the fire of but two broadsides, his exposure was but little, considering the small mark his ships afforded when end on, during the approach. *

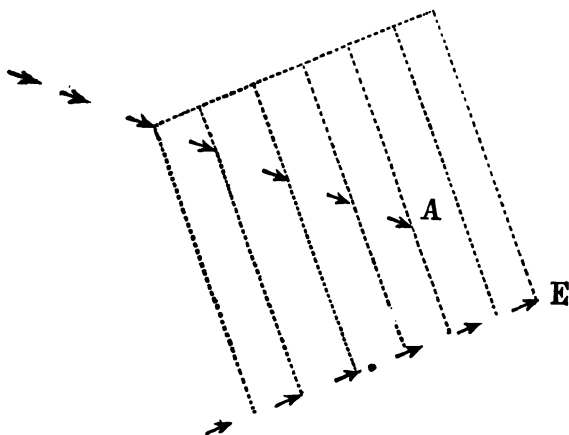
PERRY'S VICTORY, LAKE ERIE, 1813.

Though the squadron which gained this victory was small both in number and size of vessels, as compared with fleets which participated in the great battles described, yet the high professional qualities displayed by the commanders, the incidents of the engagement, its decisive results, and the consequences, both military and political, which followed, render it memorable, and constitute it an instructive illustration. As an example of persevering courage under difficulties, in repairing error, recovering loss, and of a determination to conquer one way or another, it has few parallels in naval warfare.

A careful analysis of the action will show that Perry, when given the weathergage by a shift of wind, led down in column ahead, as shown in the figure following, where A is the American attacking squadron, and E the English in line of battle on the defensive. But, like Graves', in 1781, the attack was oblique. This happened through eagerness to save time; for however Commodore Perry might have desired to attack on the perpendicular, the position he was thrown in relatively

* It seems quite likely, that with the fresh breeze and rough sea on, the Dutch were embarrassed in the use of their lee lower batteries, whilst the English fought their weather lower guns without difficulty.

to the enemy by the change of wind, made an approach on the diagonal shortest, and therefore that which gallantry counselled, rather than the more circuitous, perhaps more prudent course, by the side and perpendicular of a square, as the dotted lines indicate.* Such suggestions of cool yet eager gallantry, though sometimes at fault, are most often safest guides in the hazardous game of war; and when resolutely and per-



severingly followed up, seldom fail to result in the signal success which, as will be seen, characterized the instance in question.

Impelled therefore to lead down in oblique column, Perry found his flag, like Collingwood's at Trafalgar, the focus of a concentrated fire—and be it remembered,

* Commodore Perry had been disposed before the shift of wind, to contend for the weathergauge, which in this instance he thought preferable because the English were best off for long guns, whilst his armament was principally carronades. The English, if to windward, with choice of distance, might, probably would, have fought at long shot, and beyond his range. On the other hand, the light wind and tedious approach was detrimental to the attack, yet favorable for the defence, giving prolonged advantage to its guns of superior range.

from a very different sort of enemy—during a period much prolonged by failure of the wind; and he is said, besides, not to have been properly supported; though of this there has been much controversy. As a consequence, his vessel, the “Lawrence,” was badly cut up, in fact disabled; the column could not, or did not close up; the rear was very distantly or not all engaged, whilst the head was in close action, and a less determined officer might have despaired of the day.

Not so our heroic commander. With characteristic energy, he quit his own disabled ship for another of equal force, which, owing to some cause, was yet without material injury from the enemy’s fire; and with consummate judgment and celerity re-formed the van of his squadron, composed of the heaviest ships, for a perpendicular attack in line abreast upon the British van, also the heaviest portion of that fleet; the wind at the same time freshening. The attack thus remodelled, Perry bore down with his van in line abreast, cut through the enemy’s van, raking starboard and port, and engaged it close to leeward.

In the mean time, the commander of the ship to which Perry resorted, had left in a boat and brought up the rear of the American column, engaging it to windward of the English van, now also engaged to leeward. Thus the van of the English line became doubled, placed between two fires, and its rear thrown out of action.* This combination was most masterly,

* It is not proper here to enter upon the controversy alluded to, though candor required the allusion. Why, however, the vessel whose movements became the subject of dispute, was not more closely engaged in support or for protection of the “Lawrence,” has not to most minds been made satisfactorily to appear. Some have considered it fortunate (perhaps it was so intended) that a basis on which to remodel the attack remained uninjured. But that is not an adequate explanation; for it is undoubtedly the commander’s province to plan an attack on his own judgment and responsibility, with such counsel as he may choose to call; and once undertaken, no consideration whatever can justify withdrawal, or

and not only retrieved loss, but in a few minutes secured a victory by which the whole British force on the lake was captured.

As a direct consequence of this naval victory, the north-west was relieved from invasion, Gen. Harrison's army enabled to advance into Canada, the battle of the Thames fought, Tecumseh killed, the last great Indian combination broken up, and the savage power subdued completely and forever !

The movements will be rendered more clear by the two following diagrams. The first one shows the English line E, still entire, but ranged somewhat ahead, so

Fig. 1.

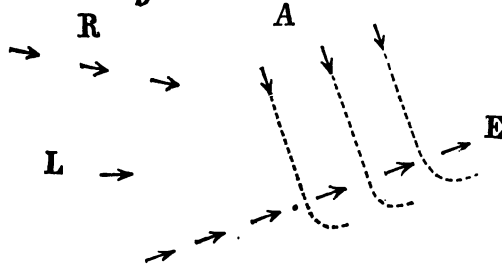
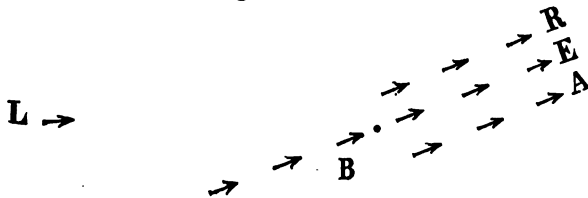


Fig. 2.



withholding support, or relaxation of effort, in the battle ; though events not foreseen, and requiring more vigorous engagement at particular points, must, as they arise, be met by a subordinate's discretion, in anticipation of orders. A memorable instance of this will be cited when describing further on the battle of Cape St. Vincent.

as to leave the "Lawrence," L, now a wreck, astern out of action. A is the American van formed in line abreast, and standing down on the dotted lines to attack the English van. R is the American rear, which the American second in command is bringing up to engage also with the English van. This figure shows what may be designated as the *remodelled attack*.

The second diagram represents the English van, E, after having been cut through and raked, closely engaged by the American van, A, to leeward, and doubled upon by the American rear, R, to windward, by which the English van E is placed between two fires, and the English rear, B, thrown out of action. This rear attempted escape, but without success. Just prior to this stage of the action, the English commodore, Barclay, was carried below wounded, by which the fleet was deprived of his direction at a critical juncture.

The diagrams of this action represent its three stages, and in one or the other of them is displayed, besides some features peculiar to itself, every prominent feature which distinguishes the several actions hitherto in this book described—as attacking in column, in line, obliquely, directly, breaking the line, raking, and doubling; also the combination by which part of an enemy's fleet is thrown out of action.

OF ENGAGEMENTS WHEN NEITHER PARTY HAS THE WIND.

Amongst naval battles which come under this head, two are most famous—that between a Spanish fleet, and the English commanded by Sir John Jervis,

off Cape St. Vincent, in 1797; the other between a French fleet and the English, commanded by Sir George Rodney, in the West Indies, near the close of the American Revolutionary war.*

BATTLE OF CAPE ST. VINCENT.†

Here the English fleet of only fifteen sail of the line, formed in the fifth order of sailing, in two compact columns, by the wind, starboard tack, on a sudden clearing away of obscurity discovered the Spaniards, with twenty-seven ships, in two irregular groups far separated, one on its weather the other on its lee bow. Sir John Jervis, rapidly forming his line of battle on the starboard tack, pushed ahead and got directly between these two groups or divisions, by which prompt movement their union was prevented.

The Figure on the next page shows A and B, the two Spanish divisions, irregularly grouped, with the English line of battle, E, pushing between them, but beyond effective engaging distance from either.

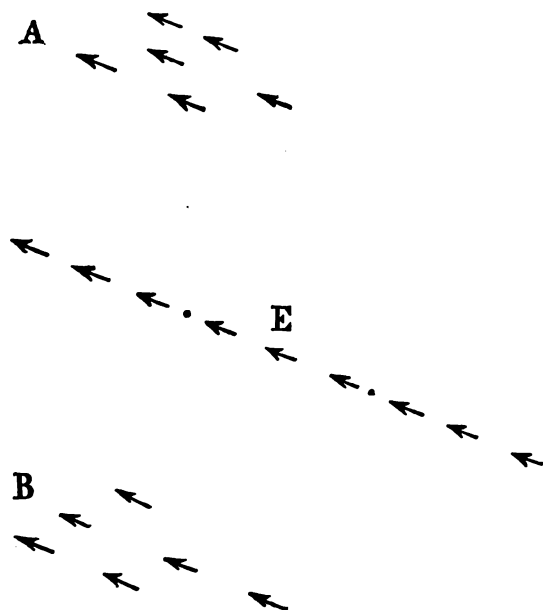
This, for the Spanish fleet, was an awkward dilemma. But it resulted obviously from culpable neglect of the order of sailing, whilst the English advantage, on the other hand, grew out of its strict observance. The case affords a warning which should be heeded, to always preserve the order of sailing, and thus keep a fleet manageable.

Next, Sir John Jervis stood on with his line of bat-

* Sir John Jervis was made Earl St. Vincent, and Sir George Rodney made Lord Rodney, for these actions.

† This action, occurring on the 14th February, is commonly spoken of as the battle of St. Valentine's Day; thus distinguishing it from Duncan's at Camperdown, fought in October of the same year.

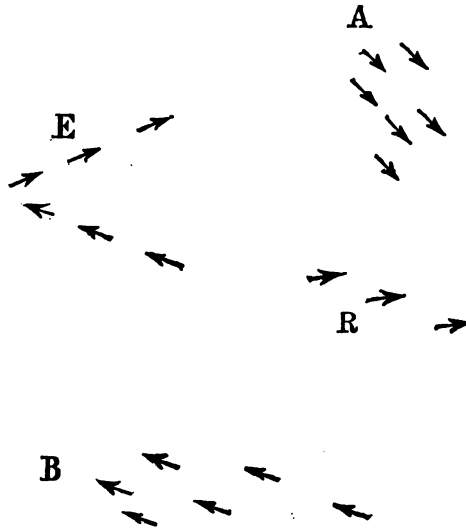
tle, until, by tacking the head of it, and the rest in succession, he could fetch and engage the weather division of the Spaniards, leaving their lee division out of action. This, however, opened an escape for the former to unite with the latter, by crossing the British wake; which union was attempted, and might, as is said, have suc-



ceeded, had not Commodore Horatio Nelson, then on board the "Captain" 74 in the English rear, anticipated orders, and wore round with several ships to interrupt the attempt. This admirable movement of Nelson's, although made with a force considerably inferior to that of the Spanish division, by engaging closely, held it in check until the English van and centre, having tacked in succession and reached the scene, by doubling the whole English upon this portion of the

Spanish force, overpowered it between two fires, and captured it without experiencing loss at all corresponding with the advantage gained.

The Figure following shows the Spanish weather division, A, attempting to escape past the English rear, R, which is worn round by Nelson to intercept the Spaniards; and E, the English van tacking in succession. The lee Spanish division, B, being thrown out of action, and unable afterwards to cope alone with the English fleet, escaped.



The weather Spanish division, instead of engaging under such threatened disadvantage, might have escaped with the wind abeam on the port tack, and the lee division followed, trusting that by superior sailing, change of wind, gradual convergence, or other circumstance, the desired union of the two separated divisions might be formed. But the Spanish commander-in-chief was

in the lee division, and it is presumed the weather division did not consider it correct to escape action without orders. And it was right, except perhaps in a case of surprise, as this evidently was, in which no anticipation of immediate engagement was entertained. The neglect of the Spanish commander-in-chief to make sail on the port tack, and to direct a corresponding movement on the part of the weather division, is unaccountable, and was inexcusable; for the two, gradually converging, might have entrapped the English van between them, and at least, considering the disparity of force in their favor, have avoided defeat.

RODNEY'S VICTORY IN THE WEST INDIES.

During the "American War," as history designates that between England and France, when the latter monarchy became our ally in prosecuting the struggle for independence, which terminated in 1783, the fleets of those two powers were upon our coast in considerable force. But in pursuance of a wise policy, dictated by a desire to avoid the hazard of giving England undisputed sway at sea, and consequent military advantage on shore, the French evaded successfully every attempt to bring on a decisive engagement. After the fall of Cornwallis and the virtual cessation of land operations in North America, this contest between the fleets was transferred to the West Indies. In the course of manœuvring there, many partial encounters had taken place; but the French being best sailers, on account of superior models and a more general use of copper sheathing, continued successful in their policy, until April, 1782, when Sir George

Rodney, the British Admiral, surprised them by a manœuvre which resulted in their total defeat.

On this occasion the fleets, not far apart, neither having the wind, each in line of battle ran with the wind abeam on opposite tacks for the other—the English taking the lee, engaging with their weather guns, the French the reverse.

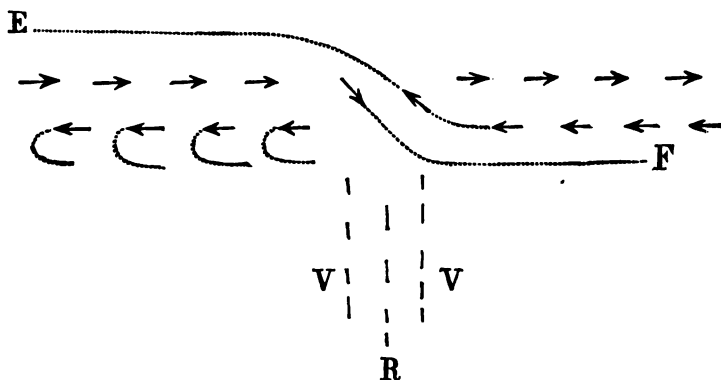
The expectation on entering upon the action, seems with both parties to have been, to pass on opposite tacks and exchange broadsides, as had often been done with no result of consequence; and it is probable, had the French Admiral, the Count de Grasse, anticipated the manœuvre subsequently practised, and the disastrous consequences to which it exposed him, he would not have consented to an engagement which he might have avoided, though perhaps at some hazard to his rear.

In the mere exchange of fire by two fleets whilst passing in this manner, it is not easy to see how serious damage can be reasonably expected; for, supposing each to sail, wind abeam, with a speed of five knots, the rate of passing is ten knots, or 60,000 feet per hour, 1000 feet per minute, or about the length of a ship in ten seconds of time; so that, taking into account delay in discharge (especially with matches) after pointing a gun, and time of flight of a ball, many shot aimed at the mainmasts by antagonist ships thus mutually passing at the distance of five or six hundred yards, would miss the hulls altogether. And supposing the intervals between the ships in line to be one cable's length (or seven hundred and twenty feet), a gun discharged at any one of them must be reloaded and ready for discharge in less than three-quarters of a minute, which is much less time than common, in order to hit the next ship in passing. Generally speaking, therefore,

under these circumstances, any given gun would probably get a shot at no more than every alternate ship.*

The two fleets having approached in the manner described, both Admirals being in the centre, the leading ships exchanged broadsides, first with each other, then in succession with the remainder. So also each other ship, as it came successively into action, exchanged fire with every ship of the opposite line, so far as it went on its passage from the van towards the rear.

When the centres of the fleets, in thus passing, had come about opposite one another, Sir George Rodney, observing an opening ahead of the French Admiral, without premeditation luffed across his bow, leading directly through the French line, and was followed by all the captains astern, who, although as much surprised as their opponents by this manœuvre, immediately, without confusion, manned the lee or opposite batteries, now brought to bear; whilst the French, unprepared (as is said) for action on the side opposite to that until then



* As evidence of the ineffectiveness of fire in this mode of engaging, it is somewhere mentioned, that one of Rodney's van ships, in exchanging fire with twenty-four ships, had only two killed, and thirteen wounded, and experienced no serious damage either in hull, spars, or rigging.

engaged, were thrown into great confusion, and proved unable to return at once the uninterrupted British fire.*

In the foregoing figure the arrow-heads pointing towards the right represent the French ships in line to windward, and those pointing to the left the English ships to leeward. The stage of the battle shown, is that in which the English centre ship, the Admiral's, is luffing through the French line; and the French centre ship, the Admiral's, is keeping off to avoid collision. The leading ship of each fleet has passed under fire of all the opposing ships, and is shown engaged with the rearmost one of the other; and the rearmost ship of each line is just come into action by engaging the leader of the other.

Now had no confusion ensued in the French rear, from want of preparation to engage the side opposite to that in use when the action began; had the French Admiral, with his rear following, luffed to leeward of the English rear along the line F, as dotted in the figure, engaging it closely and continuously with the port batteries; had the English rear kept away parallel with the French rear, but to windward of it, as dotted at E in the Figure; and had the English van continued on out of action on the starboard tack, as the French van did actually continue on out of action on the port tack, the results of this celebrated manœuvre of break-

* It is certain the British captains knew nothing, on entering action, of the Admiral's intention to cut the French line; nor is there good reason to believe he had then any such intention himself, or that the act was not prompted by a thought of the moment. It is even asserted that the order "to luff" emanated from the captain of the ship, was countermanded by the Admiral, then reiterated by the captain; and that, pending the dispute, the ship having been brought by the wind in obedience to the first order, she went through.

Nothing can better prove the good arrangements and well-trained condition of the British ships, or the coolness and readiness of resource of their commanders, than the prompt and seamanlike manner in which the unexpected incidents which arose in every stage of this battle, were met and improved to the best advantage.

ing the line, would have proved abortive to the English, and harmless to the French; and the French would be said to have cut through the English, as much as the English through the French line. The English and French ships, from van to rear, would have exchanged fire in passing, precisely as if the lines had not been cut through, except that the rearward ships of both fleets would have shifted crews to the opposite batteries.

As actually ensued, however, the French Admiral, instead of hugging to his enemy along the line F, became disconcerted by the novel English manœuvre, and most unwisely, ruinously, bore up, hoping to extricate himself by an escape on the line R. Perceiving this, the English rear steered off on a parallel course V' before the wind; the English van wore round as represented by the short dotted curves; both pursued on the lines V' and V, and placed the French retreat, R, between a double fire.

It is probable that, had the French adhered to the line F, the English would also have adhered to the line E, and that the decisive result which took place, usually regarded as the inevitable consequence of the English manœuvre of cutting the line, need not, and would not, have followed.

The French van came very tardily and ineffectually to render aid after the retreat began. In fact, it may be said to have become so far separated from the remainder of the fleet as to be of little service, though by bearing up together it might, and should, have engaged closely with the English rear V', and drawn its attention from the French Admiral, leaving him to contend only with the British van, V.

It is apparent that the French would have fared much better, had they kept the wind and fought the battle out; for, by the attempted escape, the defeat was

rendered absolutely annihilating. Indeed, in almost all cases of disorderly retreat pictured by history, the results are more destructive and decisive than come from a close and persevering grapple prolonged to the last; because such a struggle, whilst it might retrieve an action or produce a drawn battle, if ending in defeat inflicts in return an amount of injury calculated to mitigate the disaster, and cause the victors to purchase their advantage dearly.

Without doubt, the true original cause of this signal defeat is to be found in an *impaired morale*, produced by the long-continued policy of avoiding action. Though at times wise to avoid battle, if the practice be prolonged it has the evil tendency indicated, which is sure to grow unless sedulously guarded against. And this is more true in naval blockades and retreats, than in those of the land service; because the latter are so personally harassing to troops, that when they do fight, it is with the energy of exasperation.

SECTION III.

OF FIGHTING FLEETS AT ANCHOR.

THE disposition of ships for receiving an attack at anchor, or for approaching under sail or steam and anchoring to make an attack, depends upon many circumstances varying with locality, as force and direction of prevailing winds; land and sea-breezes in low latitudes; set of currents or tides; channel-ways, or more open approaches as in roadsteads; headlands, shoals, anchorage ground, batteries on shore, etc. Some or all of these exist to be considered everywhere, and in every variety of relation, offering both advantage and disadvantage. To improve one and avoid the other in the greatest degree possible, is the task of a commander in planning operations either for attack or for defence.

To shadow out in general the way this is done; to exemplify the subject by instances in which natural local capabilities have or have not been improved, or adverse circumstances rendered more or less inoperative, three cases are here adduced from history. The first is that of Sir Samuel Hood's relief of St. Christopher's, in 1782, by driving the French fleet from the roadstead of Basseterre, and immediately occupying it himself, in a manner so skilful as to defy every effort on their part

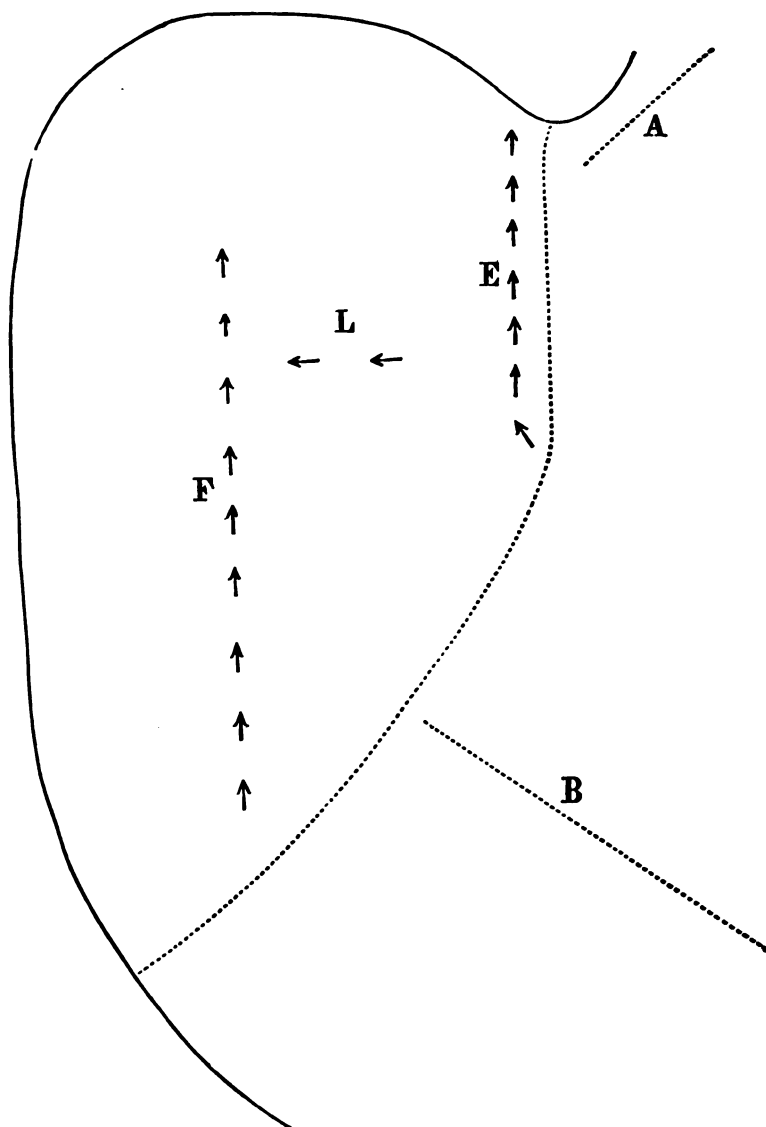
to dispossess him. The second is the successful attack made by Sir Horatio Nelson upon the French fleet at anchor in the bay of Aboukir, commonly called the battle of the Nile. The third is the battle of Lake Champlain, in 1814, where the masterly arrangements made by Commodore McDonough were such as to render a well-devised and well-conducted attack from a superior British force ineffectual; and where a contest of skill, gallantry, and of perseverance rarely witnessed, resulted in victory to the Americans, and capture of the enemy's fleet.

SIR SAMUEL HOOD AT ST. CHRISTOPHER'S.

The roadstead at Basseterre forms a protection against the N. E. trade-winds by an indentation of the coast, and affords good holding ground within a certain line, the verge of a ledge, off which there is no anchorage. The continuous line in the sketch following represents the make of the shore; and the dotted line intersecting it, is the outer limit of the anchoring ground. Any officer who has been at St. Pierre, Martinique, may have observed there a similar formation, which marks distinctly and abruptly the extent of anchorage.

On the occasion in question, at Basseterre, the French fleet, consisting of thirty-three sail of the line, was at anchor in one line well in towards the shore, as represented at F in the Figure, having both flanks exposed to an approach with comparative impunity, as well as to be doubled by the enemy.

An inspection of the Figure shows that, anchored as the French were, so as to swing in line ahead when riding to the trade-wind, and provided with springs as they



undoubtedly also were, the approach would prove somewhat, though not greatly damaging, to the leaders of a column of attack steering in rapidly as on A, with the usual fresh trades; for besides a naked direct fire of but short continuance, there was no serious obstruction. Nor were there any means of preventing the assemblage of an enemy's whole force upon the head of the French line, throwing its rear entirely out of action.*

Considering that military operations between the belligerents were then in active progress on shore, also that the occupancy of the roadstead was important to both parties, it is singular that the French fleet, when in possession, and aware of liability to attack, should have remained so exposed, instead of appropriating, in aid of its defensive attitude, the natural features of the locality, which the English subsequently showed to possess great capabilities for that purpose.

Sir Samuel Hood, with only twenty-two ships of the line, stood in on the track A, to attack exclusively the head of the line of the French anchored at F; who, perceiving the exposed nature of their position, slipped at once and stood to sea on the track B, expecting the English to follow. As, however, Sir Samuel's force was so far inferior as to render an encounter without strategic advantage injudicious, and his object the benefit arising from possession of the roadstead, he wisely did not follow; but immediately anchored his fleet, as at E, on the extreme outer edge of the ground, with the headmost ship near to, and protected on that flank by a point of land; and for protection of the rear flank, two ships, as at L, were disposed so that they, together with

* Exposure of the weather extremity to be thus doubled, is a greater error than exposure of the lee; because the lee may be succored from to windward by slipping cables and dropping down; whereas the weather flank cannot be succored from to leeward under sail, or without the aid of steam.

the leeward ships of the line when sprung as represented, by their raking and cross-fire effectually prevented the French approaching, or anchoring within that extremity.

Observing the English anchored, the French returned, with the intention of driving Sir Samuel away as he had driven them. They led in to attack, as he had before done, on the track A. But they found no possibility of passing ahead and within his van, or of anchoring anywhere without his line; also, that no impression could be made on his centre by sailing along it before the wind; that his rear, too, was impreguably disposed, and the anchorage to leeward of it swept by its batteries; and hence were forced to relinquish the attempt.

This is a complete illustration, in its way, of neglect by one party, and improvement by the other, of natural advantages offered in this particular locality. Every other place affording field for action at anchor, will be found to possess likewise its advantages to be improved or neglected, either by the attack or the defence; and those officers most accustomed to study positions in this relation when not in command, will naturally, other things being equal, find themselves most ready in seizing the points presented, and forming a correct judgment, when called, in circumstances of responsibility, to decide and to act.

BATTLE OF THE NILE.

It was on the 1st day of August, 1798, at 3 o'clock in the afternoon, that Sir Horatio Nelson, in command of an English fleet of thirteen sail of the line, after a lengthened search for a French fleet of an equal number

known to have left Toulon, discovered it anchored in the bay of Aboukir, coast of Egypt, where it had landed an army under Gen. Bonaparte. The French were anchored in a straight line, extending across the bay in a direction west-northerly and east-southerly, two and a quarter miles long, with intervals of three hundred yards between the ships. The head of the line lay near an island (Nelson's Island) and reefs, but yet so distant from them as to admit of ships passing ahead and inside. This flank or head of the line is said to have been protected by a howitzer battery on the island; but nothing is heard of its effects on the ships, and as will be seen, it proved of no account.

A chaplain wrote the book containing the original description of the action, and all since follow him in calling the French arrangement "a compact line of battle, formed in a position of great security, with the flanks strongly protected." Such a representation is the height of absurdity. Thirteen ships in an open roadstead, scattered along a line of two and a quarter miles, is any thing but secure or compact. It was, in fact, no line for battle at all, nor intended as such, nor were the flanks in any degree strengthened. Nelson at a glance saw this—that apparently not a single preparation of any kind was made to receive an attack, and rightly inferred he had caught his enemy napping; taken them wholly by surprise. They had sailed from France keeping their destination profoundly secret, and seem not to have dreamed of pursuit. Hence their astonishment and total want of readiness. A French Admiral, Gantheaume, confesses to a "boundless and fatal security."

Whether at that late hour, 3 o'clock in the afternoon, to stand in for attack with the regular sea breeze, which always there alternates with the land breeze at

that season, and was then blowing fresh, with the possibility of not being in position before dark, and the certainty of a night action; or wait till next day, when the enemy would not only have recovered from surprise, but by an industrious use of the night have repaired error, closed the line, strengthened the flanks, and sprung the batteries on the track of approach to the van, most likely to be assailed, was a question of the utmost moment presented to Nelson, and requiring prompt decision. By delaying the attack till morning, not only would the *defence* have become more complete, but the light sea breeze usual at that early hour would prolong the approach, and thus increase the dangers and difficulty of the *attack*. Besides, the enemy, by crossing top-gallant yards, indicated an intention to escape, if given the opportunity during the night. Yet with all these reasons weighing, it is not wonderful that even Nelson shrunk from the hazard of entering at so late an hour a strange roadstead, without previous reconnaissance, necessarily if at all at a dash under a press of sail, with the horrors of the night which actually ensued pictured to his fertile mind; or should express for a moment indecision, as he did by once countermanding, but immediately reiterating orders for preparation to engage.* The fate of the French fleet, anchored as it was, hung upon that moment, and, barring accident, was sealed by the decision as effectually as by the battle.

Once determined to attack, no time was lost in forming the fleet, but the signal next flew to steer for the enemy's van, and each ship gain the column of attack without reference to any prescribed order. Capt. Foley, in the *Goliath*, after a struggle got the lead. Nelson

* The hazards were greater then than the same act would involve now, since the great improvements in hydrography have very much reduced the dangers of coast navigation.

himself, in the Vanguard, fell in fourth, but soon made way for two more ships to pass ahead.

This again was a most wise step, considering that the pilots were not reliable, hence some of the leading ships might ground; and better, of course, any other than the Admiral's. Besides, though the plan of attack was well understood by the captains, some error in carrying it out was possible, which the Admiral, if in position near the centre, could observe, and correct or repair.

At half-past six in the evening the French van opened fire on the leading English ships. This was, however, done feebly and ineffectually; because, with no springs on their cables, and tailing in somewhat towards the shore by riding to the sea-breeze (there is no tide), only the forward division of a few of the French ships bore on the English. Consequently nothing is heard of damage from the French fire to any one of the attacking ships in the approach, though much is written in poetical accounts about "the shower of shot and shells from the howitzer battery on shore,"* and "steady fire from the starboard broadsides of the whole French line;" most of which line was, by these very accounts, beyond engaging distance.

Nelson, as is said, got the idea of the plan of attack on this occasion, which was to double on the van or head of the enemy, throwing the rear out of action, from Sir Samuel Hood's design against the French at St. Christopher's, in 1782, previously explained in this book. The circumstances of the two cases were similar, except that Nelson had no motive other than destruction of the enemy's fleet, whether encountered at

* This "shower of shot and shells" proceeded from a battery, which, when captured after the battle, proved to consist of one 13-inch mortar, and four 12-pound howitzers!

anchor or under sail; and the French, for maintenance of communication with the army of Egypt, held on to their anchors; hence Nelson, standing in to attack as on the line A of the Figure, page 92, was enabled triumphantly to carry out a design like that which Sir Samuel had projected, but which was eluded.

The arrangement for anchoring his ships to engage was original with Nelson, and it is believed then practised for the first time in general action. It consisted in taking the cables out of the stern ports, along the ships' sides, to the rings, probably of the waist anchors, so as to anchor by the stern. This saved the necessity of rounding to, and avoided the hazard of being raked, if in veering cable a ship should fall off broadside to the wind, as often happens. Besides, the berth was taken with much more certainty. A ship was run for her place, directly before the wind, and the anchor dropped only just before reaching the exact spot for engagement abreast the intended adversary. The plan appears to have worked well in practice, except that many undoubtedly had too much way, by which either the anchors dragged; or, with no after bitts, the stoppers parted and too much cable ran out; in some instances, the anchors hung.

Capt. Foley, in the *Goliah*, leading, passed ahead of the French headmost ship, the *Guerrier*, between her and the shore, delivered a raking broadside intending to anchor abreast her, but the anchor hung, and he brought up abreast the second ship, the *Conquerant*. The *Zealous* coming next, took the station left opposite the *Guerrier*.

The following plan gives, at one view, the position of all the ships when anchored and engaged; how engaged; also the result. The English are numbered in the order, as to time, in which they anchored.

Inside English Line.	French Line.	Outside English Line.
2. Zealous.	Guerrier.	
† 4. Audacious.	Conquerant.	
1. Goliath.		
5. Theseus.	Spartiate.	Vanguard, 6 (Nelson's)
	Aquilon.	Minotaur, 7.
	Sov. Peuple.	
* 3. Orion.	Franklin.	Leander, 13. Defence, 9.
	L'Orient.†	Bellerophon, 8. Swiftsure, 11.
12. Alexander.	Tonnant. }	Majestic, 10.
	Hereux. }	

All the French ships above this, surrendered in the general action.

Thrown out of the general action entirely.	Timoleon.	} Destroyed next morning by the Alexander, Majes- tic, Leander, and Goliath.
	Mercure.	
	Guillaume Tell.	} Escaped next morning, though chased by the Zealous.
	Genereux.	

* Anchored at sunset.

† Took fire at 11 P. M., and blew up at 1 A. M.

‡ The Audacious, after the Conquerant surrendered, dropped down abreast the Sov. Peuple, in aid of the Orion. Capt. Gould's *audacity* as a seaman in taking the berth between the Zealous and Goliath, as well as in threading his way to aid the Orion, most unequally engaged, is worthy the name of his ship. A bold seaman is a refreshing contemplation, and exemplifies a quality not enough cultivated; a noble ship of war in the hands of a timid seaman, is a most unpleasant incongruity.

Personal courage and professional boldness not unfrequently are not combined. One is an affair of nerve simply, the other unites an operation of the mind. Both may, and should, be cultivated; but neither to the exclusion of the other. The cultivation of professional boldness consists mainly in the thoughtful experience of mature years, in positions of responsibility; and has but little relation to the columns of "total sea service" paraded in the Navy Register, because of the thoughtlessness and youth in which much of the service is seen, and because of

Some of the ships, by the anchors hanging, or with too much way, did not bring up as designed; for instance the *Goliah*, as before stated. The *Bellerophon*, only a 74, meant to engage *L'Orient*, a heavy three-decker, on the bow, but brought up exactly abreast, and of course soon found it too hot. The *Orion*, though the third ship anchored, brought up far down the line and engaged two ships, probably also through some accident with the ground tackle. And in the same way, perhaps, the *Majestic's* position between two ships may be explained.

Some accounts say Nelson had no idea of any ship going within the French line; but intended anchoring all on the outside, two ships against one, and it was on his own volition that Foley led inside. Others say the reverse—that until Nelson himself anchored outside, those astern of him following his example, it was not intended anchoring outside at all. Be this as it may, the five ships ahead of Nelson in the attacking column did anchor inside; whilst he, and those who followed him in the column, all anchored outside; that is to say, as appears by the plan, the *Goliah*, *Zealous*, *Orion*, *Audacious* and *Theseus* had successively anchored inside, when he came up in the *Vanguard* and anchored outside, abreast the *Spartiate*. It is probable he designed two ships to double against one, not caring in what way it was done, whether inside or out. Besides engagement with the *Zealous*, the *Guerrier* had received the raking fire of the four other ships that passed inside, some ahead and some astern of her, which sufficiently doubled her. The *Conquerant* was doubled by the

the variety of aptitudes which exists. Some will find lessons and lay by their teachings, where others will discover none; and will discuss acts, even of their superiors, when knowledge can be derived—which practice, when conducted in a right spirit, far from being objectionable, is highly praiseworthy; but when indulged censoriously, is not only to be deprecated, but is positively execrable.

Audacious and Goliath; and when Nelson reached the French line he found the Spartiate the weathermost French vessel not yet doubled, she being engaged only with the Theseus. Hence he anchored so as to double the Spartiate.

The braces in the plan indicate how the other ships were engaged; for example, the Theseus exclusively with the Spartiate; the Vanguard principally with the Spartiate, but occasionally with the Aquilon; and the Minotaur principally with the Aquilon, though in some degree with the Spartiate, &c.

L'Orient was a heavy three-decker, and early in the action beat off the Bellerophon, 74. The Swiftsure, 74, one of the ships last arrived from detached service, anchored in the Bellerophon's place; whilst the other last arrived ship, the Alexander, passed under L'Orient's stern, raking, and anchored on her inner quarter. This occurred not until long after dark. The three ships, the Swiftsure, Alexander, and Majestic, were far inferior in force to L'Orient, Tonnant, and Hereux. But L'Orient took fire from paint and oil carelessly exposed on the poop, which could not be extinguished, and she blew up; when the Tonnant and Hereux, being over-matched, surrendered.

The plan shows twelve English 74's and the Leander, 50, anchored and engaged with nine French ships of the line, throwing four out of action. The thirteenth English 74, the Culloden, Commodore Sir Thomas Trowbridge, grounded as he led in with three ships returning from detached service. By this accident, though it saved the other two, the Alexander and Swiftsure, Trowbridge failed himself to participate in the action—which brings to mind and illustrates Nelson's wisdom in not himself leading his column, and exposing his own ship to similar disaster. The Leander the thirteenth

and last ship anchored, had been to aid the Culloden, failing in which she rejoined the attack.

By the plan, it appears the Orion was engaged with two ships at the same time. So also was the Majestic. Moored as the French ships were, three hundred yards apart, it seems as if the guns of either of these English ships would not bear on both adversaries at the same time. But the engaging distance was about three hundred yards. The English and the two adversary ships therefore occupied the three angles of an equilateral triangle; that is to say, about five points at each angle—two and a half before and two and a half abaft the beam of the English vessel at one of the angles. The forward guns will train this much forward, and after guns aft, without difficulty; so that the Orion and Majestic *could* each engage their two opponents at the same time. But had the *Sov. People* and *Franklin* availed themselves of springs on both sides—which sort of deliberate preparation is one of the leading distinctive advantages which the defence at anchor has over the attack, and should improve, to balance many disadvantages—and both sprung their broadsides on the Orion, during the considerable time which elapsed before the *Defence* or *Leander* anchored to relieve her by engaging the *Franklin*, the Orion ought to have been completely subdued; and would have been, with any sort of creditable management, or in engagement with an experienced skilful enemy.

In this action the English, as appears from the foregoing description and observations, besides availing themselves of the enemy's neglect, improved every advantage in the attack. The French, on the contrary, neglected in the defence every precaution, and every local capability, which improved might have rendered them secure against thrice their force. This last may be shown in a few words.

In the first place, two elements, tide and weather, left out, simplify the case very much. There are no tides; and the proverb, that "June, July, August, and Port Mahon, are the best harbors in the Mediterranean," is expressive as regards weather. Then, consulting the English sectional chart of the Egyptian coast between Alexandria and the Nile, as surveyed by Capt. Smyth, R. N., in 1822 (found on board our ships of war usually), "Nelson's Island," that near which the head of the French line anchored, it will be seen offers with its reefs a space marked "Burial Bay," in which a crescent line a mile and a half in length, of, if need be, twenty ships, moored head and stern, a length or less apart, the flanks resting on two salient patches of the reef—one south, the other east, but within a distance of one mile from the island—would be absolutely impregnable, at least by cannonade. For, first, assuming the attack would be made with the sea-breeze which comes from the N. and W., the island and reefs form a complete protection from any approach with the sea-breeze as a leading wind. Second, the line could not be assailed in flank, owing to the reefs. Third, the open approach from the S. E., could be effected with the sea-breeze, only by luffing into the bight of the crescent, exposed to a concentrated fire from the whole, or nearly the whole line. Fourth, granting that the attacking fleet could, under these circumstances, fetch an anchorage, or even gain it with a leading land wind from the eastward or southward, it cannot usually come to an anchor under sail, so close by one-half, as a defensive line can be deliberately moored; hence each attacking ship would be exposed to the fire of two of the defence, or doubled. Fifth, granting in the discussion that the attacking ships can anchor as close as the defence is moored, the fire of the latter in cres-

cent form has the advantage, because convergent, whilst the former is divergent. And sixth, should the flanks by any means prove assailable, an advantage of the crescent form in defence, is, that it gives protection to either flank from the other, perhaps from the whole opposite wing. Sketch a crescent, and this becomes apparent.

There is an evil, however, to which these compact immovable lines are exposed, namely, an incendiary attack with fire-ships, hot shot, or shells; and before taking up such a position, the chances of an attack of the kind, the means and facilities of the enemy for preparing it, and the winds or other circumstances favorable to its execution, need to be weighed. It is undoubtedly true, as a general rule, that in proportion as a fleet is strongly moored against assault by a battering cannonade, it is weak in exposure to an incendiary attack.

In the instance under consideration at Aboukir, Nelson brought with him, and in an uncertain pursuit, not knowing in what position or where he would discover his enemy, might have been expected to bring with him, none but fighting vessels. The ports of Egypt, and all the small craft, the usual material for fire-ships, were in possession of the French; therefore it was not easy, hardly possible, for him to prepare an attack with fire-ships. Then to execute it when prepared, a fair wind right before it, and a strong one, is necessary; for the vessels must be kindled and abandoned at some distance from the enemy, yet must be kept on a course before the wind, which can only be done by heavy drags; and these drags retard progress so much, that, without a strong breeze, the approach is slow, the combustion being rapid, the material consumes before the enemy's line is reached, or the prolonged

cannonade sinks the fire vessel, or it is towed away by boats, and the enterprise fails.

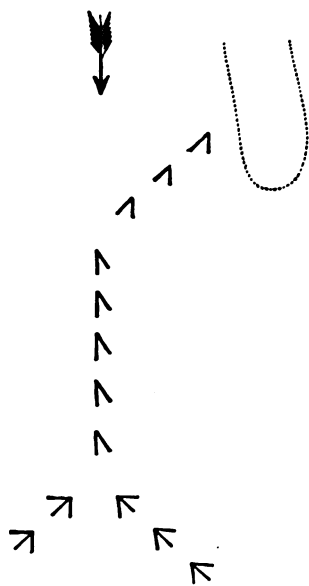
Considering, therefore, Nelson's want of facilities for organizing an attack with fire-ships at Aboukir, and that the land breezes, through want of strength, and the sea breezes, by want of right direction, were unfavorable; also that neither hot shot nor shells were then in use on board cruising ships, there was but little ground for apprehension on that score.*

But if the apprehension did exist at all in the mind of the French Admiral, and in consequence he hesitated to secure his fleet completely and immovably, it was still in his power to give the line, moored for swinging, ample strength, by using the rocky patch mentioned, as was perfectly feasible, to secure its head against being turned; compacting it so that no attacking ship could cut through, and none anchor inside, nor two anywhere against one, but more probably only one against two (because, as before remarked, ships can deliberately moor twice as close as they can usually anchor); springing them upon the approach; and giving to them a crescent or an octagonal form, by which to obtain concentration of fire, and protection of the rear if exclusively attacked.

This last-mentioned form, crescent or octagonal, is excellent for a line of several single decked ships, with heavy batteries (the kind we are likely, from present appearances, to be best provided with), if attacked at anchor by a smaller number of heavy double or three-deckers. Such heavy double decked ships, by anchoring against any one part of a straight line of single

* It may be argued, on the one hand, that the introduction of incendiary missiles of various kinds has increased the hazard of the compact assemblage of ships, because of their greater liability to conflagration; and on the other hand, that steam affords increased facility for the removal of individual ships on fire.

deckers, would of course overpower that part, as L'Orient did the Bellerophon, then destroy the remaining parts in detail. But the crescent line may be such as to enable almost every vessel to spring a broadside upon any given point where these heavy ships might be attacking. Indeed, in many ways which ingenuity may suggest, this species of line may be used to meet emergencies, obviate disadvantage, and secure success. As an example of this, in the Figure following, thirteen ships, the number of the French at the Nile, are disposed as it is conceived they might there have been.



The ships are very compactly arranged, yet so that all can swing, and in case of an incendiary attack, slip if necessary to avoid destruction; so also that the rear can protect itself, and if exclusively attacked, receive support from other parts of the line sprung for the purpose. The dotted line represents a shoal (as the eastern patch off Nelson's Island), on which the van rests for protection against being turned. The V's are each a ship, represented by one leg of the V as riding to the wind,

and by the other as sprung; but the double V's of the rear forks may be taken as representing the ships of those forks sprung to different degrees. The centre and two wings are shown as sprung to bear on a force attacking the van or weather wing exclusively.

To oppose an attack differently made, they would be sprung differently, if provided, as is assumed they

are, with heavy kedges laid out on either side, in readiness for all contingencies. If the rear or lee wing is attacked on the outside, the centre and van—the last not more than 1,400 yards distant—are sprung accordingly. But if the rear be attacked on the inside, it is found protected by a fork, the cross-fire of which would be very effective.

BATTLE OF LAKE CHAMPLAIN.

The two preceding battles fought at anchor illustrate the disastrous effects of a blind omission to strengthen the defence. The Battle of Lake Champlain displays, on the contrary, the signal success resulting from the appropriation of all existing advantages, and from the consideration of every circumstance, bearing, however remotely, on the defence, in an expected conflict.

In the year 1814, preparations were made by the British in Canada under Sir George Provost, for invasion of northern New York, along the western shore of Lake Champlain, the purpose being, as supposed, to follow the traditional route to Crown Point, naturally an impregnable position, from which, if also in the naval command of the lake, as a channel for supplies, it would be difficult or impossible to dislodge a considerable enemy's force. Without command of the lake, however, Crown Point would be wholly untenable. This command of the water, therefore, the British undertook to obtain by fitting a squadron larger than that then possessed by Commodore McDonough, who had previously, by order of the Government of the United States, equipped a squadron at Vergennes, in Ot-

ter Creek. So early as the beginning of September, Gen. McComb, with a small army, formidable by its gallantry and spirit, but inconsiderable in numbers, had intrenched himself behind the river Saranac, at Plattsburg; Commodore McDonough had anchored his vessels in the bay of Plattsburg, and Sir George Provost had advanced near the place with 12,000 troops.

The English vessels, under Commodore Downie, which had been prepared at the Isle Au Noix, having sailed and entered the Lake, were on their way to co-operate with the British General by attacking the American fleet—the plan being, for him to await the result of the naval battle, and if successful, to crush the inconsiderable body of American troops, and advance at once to the point of immediate destination; but if, on the contrary, unsuccessful on the water, the control of which was an essential feature to the campaign, then to abandon the enterprise, and retreat without delay into Canada. Thus the work of relieving the frontier in this instance, as in that of the previous September on Lake Erie, rested solely with the Navy, which now, as then, proved itself eminently equal to the task.

Mr. Cooper has given, in his graphic description, and four consecutive frontispiece sketches, as complete an idea of this action as can well be; which renders a repetition here unnecessary; especially as his "Naval History" is, or ought to be, in every officer's collection. Nevertheless, a brief analysis may reveal more clearly the extent to which the case is instructive, as an example of foresight and accurate reasoning in preparation for the battle, as well as of undaunted perseverance, gallantry, and skill in conducting it to a successful issue. This is moreover due to the memory of Commodore McDonough, whose heroic cour-

age whilst contending against vast odds, and whose unshaken fortitude, never surpassed, were not more conspicuous than the modesty with which he wore the honors accorded to him at the time by a justly grateful nation—honors contrasting strongly with the singular discourtesy which hauled down his broad pennant, superseding his Mediterranean command, in 1825; and with the equally singular neglect to keep him and his services actively alive in the recollection of the present generation, when naming the vessels of the Navy recently constructed, and called after many of its most distinguished officers who had paid the debt of nature. Delaware, which gave him birth; New York, which he signally served; and Connecticut, honored as his home and his burial-place, owe it to his memory and to themselves, that such acts of injustice receive merited rebuke and atonement.

McDonough foresaw that the English, in order to obtain control of the lake, would be compelled to make the attack, by which the privilege of receiving it at anchor rested with him, consequently of making such disposition as would countervail the very great disparity of force. He foresaw, considering the narrowness of the lake, the current setting northwardly towards the outlet by the river Sorrel, the length, light draft, and flat bottoms of the English vessels, that to beat them up against a southerly wind would be impossible; that they therefore must run up with a northerly wind, which, when at all to the northward draws up the lake; and when to the southward, draws in like manner directly down the lake,* making it necessary generally, in navigating up or down these waters, to run before the wind,

* Our rivers so uniformly run southwardly, whilst the current of Champlain is northwardly, that the expression "up the lake" to denote sailing south, seems anomalous. Up the lake is up stream, or southerly, and down the lake is down stream, or northerly.

or to beat. He had observed that a northerly wind, though fresh on the lake, was light and baffling in the bay; and knew the proverbial effect of a cannonade to deaden the wind. He reasoned that because of the advanced stage of the season, with only two months to intervene prior to the closing of navigation by ice, his adversary could not, after coming up with a fair wind, anchor in the lake to the southward of the bay, and lose precious time by there awaiting a southerly or leading wind into it, by which to attack with less disadvantage,* and, with that option, to render uncertain which end of the line of defence would become the weather and which the lee.

With these ideas, McDonough determined to await the enemy in Plattsburg bay, at anchor, with the head of his line disposed to the northward, in expectation of attack with a northerly wind. The event justified the determination.

The head or northern extremity was placed so far north that it could not be turned, as was the French line at the Nile, but could be reached from Cumberland head only by a scant wind, probably also light and baffling, possibly not without beating, all which would render an approach to the attack both tedious and exposed; yet it was not placed so near the northern shore as to be within effective range of field batteries there established—the enemy being then presumed to have with it no heavier description of artillery, for which it relied upon the fleet. The head of the line was strengthened more than the rear or leeward extremity, because if either were exclusively attacked, the rear might be

* Sir James Yeo commanded in chief on the whole line of lakes. His complaint of the manner of attack, head on, was without reason. It was of necessity so made, unless a lucky change of wind to the southward had taken place at the hour of immediate preparation.

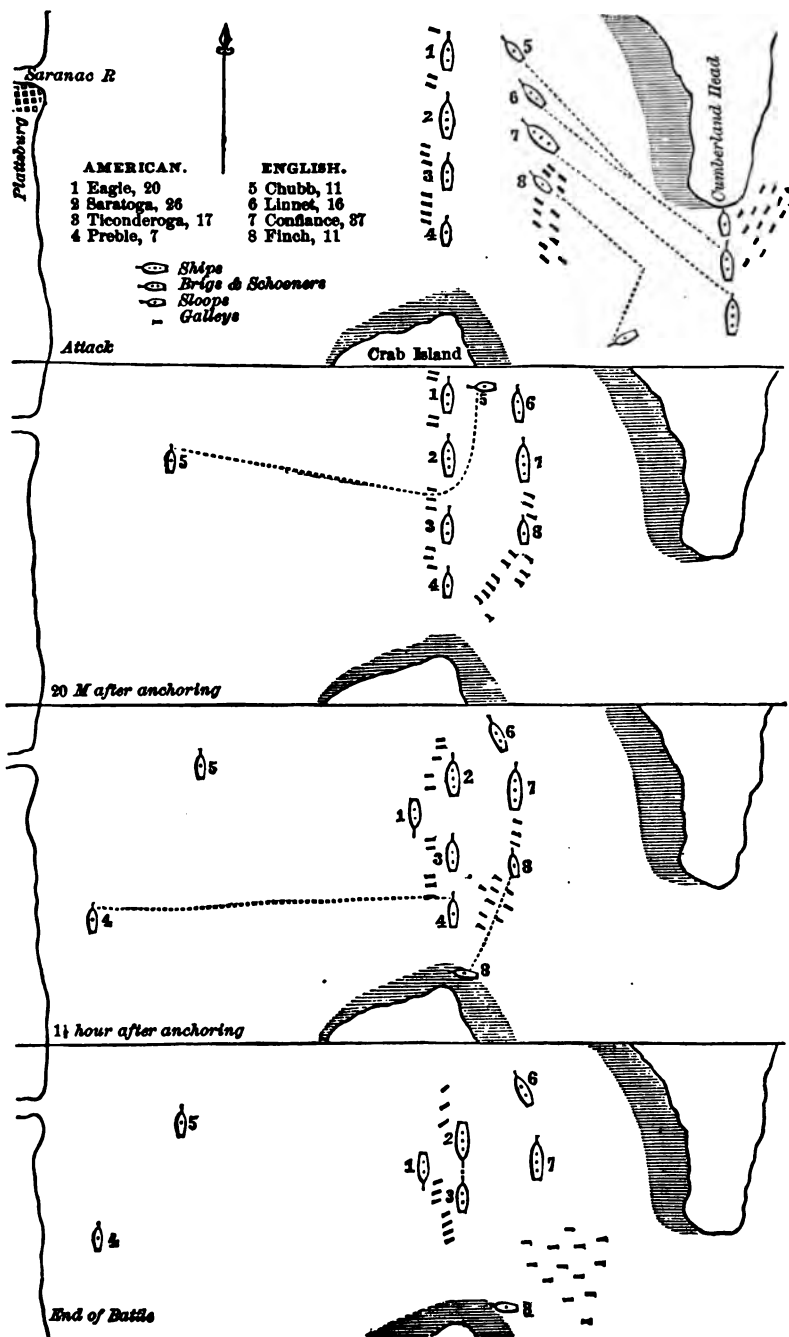
succored from to windward, as the van could not be from to leeward.*

The advantage peculiar to the defence, that of arranging springs, providing hawsers, kedges, and other means for controlling direction of broadsides, preparing for change of wind, or, if necessary, winding ship, was availed of to the fullest extent, rendering this sort of control certain beyond peradventure by most of the ships, and was the particular preparation on which at last victory depended. That is to say, whilst the English, coming to anchor under fire, could provide themselves simply with springs on the cables, the Americans generally had not only springs, but an anchor at the stern ready for emergency, and a kedge planted broad off on each bow, with a hawser and a preventer hawser from each quarter to the kedge of that side.

Whilst the preparations and conduct of the defence, so far as depending on the American commander, were thus unexceptionable, wholly beyond criticism, the attack seems likewise to have been in the main faultless, both in its conception and execution. True, the English advanced head on to their enemy, and in doing so suffered severely, perhaps fatally. But that was made inevitable by the American defence and the natural circumstances of the case, and as was intended, went far towards compensating for disparity of force.

The following cut in four divisions, which represent the several stages of the action, is given from Cooper's *Naval History*. Although the scale of distances does not profess to be accurate, yet an idea of the engagement is given, which the text alone will not so clearly convey.

* The Eagle, the headmost vessel of the American line, as a preparation for battle, mast-headed her topsail yards. This was probably with a view to succoring the rear, should the weight of the attack fall on that extremity of the line.



The first division of the sketch shows the American fleet anchored in line, with the enemy advancing to the attack—the distance sailed from the neck of land called Cumberland head to the American line, being about one and a half miles. Capt. Downie's purpose was to lay his ship, the *Confiance*, athwart-hawse of the American commander's ship, the *Saratoga*, and carry it by boarding. The plan promised success, because of the higher decks of the *Confiance* and much larger crew. Her carronades, mounted without ports purposely to belch cannister upon the American decks, were to facilitate the work. The smooth water also was favorable to this design. But at the same time smooth water favored precision of fire, which told with such destructive effect, that the attacking line was compelled, by it and by the failing and baffling wind upon which McDonough had calculated, to anchor four hundred yards distant. Thus skill in seamanship and gunnery, rather than prowess in hand to hand conflict, became the arbiter of the occasion.

When anchored, the three vessels, the *Chubb*, *Linet*, and *Confiance*, comprising the English van, became engaged with the two, the *Eagle* and *Saratoga* (see 2d division of the cut), which made up the American van; and upon the contest between the vans, which seems to have been a battle by itself quite distinct from that going on at the same time in the rear, the result more immediately depended.*

The relative force and character of the vessels composing the vans thus engaged, are represented to the glance as follows:

* Whilst, as will be seen, the object of the British rear was to get at and assault the American van in the flank; that of the American rear was to counteract this design, which it successfully accomplished.

AMERICAN VAN.

Eagle (brig),	{ 8 Long 12 Carronades,	18's 32's }	150 men.
Saratoga, sloop of war (ship),	{ 8 Long 6 Carronades, 12 Carronades,	24's 42's 32's }	212 men.
Total,	46 Guns.		362 men.

ENGLISH VAN.

Chubb (sloop rig.),	10 Carronades,	18's	40 men.
Linnet (brig),	16 Long	12's	100 men.
Confiance (frigate- built ship),	{ 30 Long (main deck) 1 Long pivot 6 Heavy carronades	24's 24	325 men.
Total,	64 Guns.*		465 men.

The Linnet and Chubb were together superior to the Eagle; but the latter, by devoting a single broadside to the Chubb, captured her.† The Linnet and Eagle were more nearly matched. But, aided as the former was by a few of the double-shotted, heavy 24's of the Confiance, the Eagle's berth soon became so warm that she quit it; when her adversary, the Linnet, sprung a broadside of eight long 12's upon the bow of the Saratoga, placing that ship in a most critical position. The third sketch represents these movements on the part of the van of each fleet, and shows the Saratoga, with a broadside of only thirteen guns, under a focal fire from two vessels, which together went into action with twenty-seven in the broadside.

On the ocean, vessels of such diverse individual force as those which composed the fleets of both belligerents on the lakes in 1812, have not been hitherto admitted

* Strictly the addition is but 63. But the pivot 24, equalled two broadside guns by its ability for use on either side.

† The second cut shows the Chubb's fate.

into the same line of battle; no greater relative difference having been known in its constitution, than that which exists between two-deckers and three-deckers—not counting the spar deck as technically a gun deck. Single decked ships, as frigates, with only one tier of guns, have never been thought fit, in close action, to receive a broadside from ships with tier above tier, able to concentrate the guns of all upon a single point. Place the three tiers of a “first rate” upon three ships of one gun deck each, and the three, if brought into line of battle against a first rate, would, with a single broadside upon each, be destroyed in detail. Each would, in fact, be doubled, and inflict no considerable damage in return.*

On this principle, the gun-boats, which in the sketch are represented on the American side as mingled with the van under fire from the enemy’s heavy broadsides, could have been of but little service. They were compelled, in order to escape destruction, to ensconce themselves behind the larger vessels.† So the Chubb yielded to a single broadside from the *Eagle*. That brig *ought* to have succumbed only to a fire from the *Confiance*.‡

* Under steam, it is admitted that the three single-deckers might concentrate their fire upon their mammoth opponent, producing a cross-fire unendurable.

† The space between the ships is nowhere given on authority. It seems to have been such as needed row galleys to obstruct a passage through. Some have thought, had the gun-boats, or a portion of them, been disposed so as to form an L to the eastward from the *Eagle*, their fire would not only have been as effective upon the approach, but infinitely more serviceable during the battle, by flanking and raking the British line, and yet remaining measurably free from a return fire. Several gun-boats, so stationed, would have seriously engaged the *Linnet*’s attention, and flanked the English van.

‡ The wind angled slightly with the line, and to fight with the broadsides pointed “right abeam,” all the ships were canted somewhat with the starboard springs. The English had this one advantage (as Cooper remarks), that their springs, being on the starboard side, were not exposed to the shot. The reverse was the case with the Americans, and the explanation of the *Eagle*’s quitting her berth is, that her springs were shot away, and she consequently swung to the wind so that her broadside would not bear. A single hawser is a frail and uncertain dependence for so momentous an occasion, and whoever trusts to it alone is inexcusable.

And the *Saratoga*, only a sloop of war, could never have borne three successive and fairly aimed discharges from the frigate *Confiance*, with all her guns in broadside and fully served. That the *Saratoga* did actually sustain the prolonged fire of the *Confiance*, is evidence of the damage to which that vessel had been subjected in the approach, or else that her aim was imperfect, and shot in consequence wasted. It is said the guns of the *Confiance* had, prior to the engagement, been most carefully levelled, and the quoins lashed in place; that their first fire in consequence almost annihilated the *Saratoga*, but became less destructive as the lashings stretched and the guns took elevation. Damage in the approach, imperfect aim growing out of too confident reliance upon the level originally given the guns, and admirable firing from the *Saratoga*, all probably combined to reduce the superiority of the *Confiance* to a par with the *Saratoga*.

Both ships finally had the broadsides which were engaged, totally disabled. In this emergency, both attempted to "wind." The *Confiance*, with a spring upon the cable, her only preparation, got so far round as to expose her bow to the American line, and in that position hung. The *Saratoga*, through preparation made prior to action, was entirely successful; and thus, bringing her fresh fire upon the disabled battery of the *Confiance*, soon caused her to strike. The *Saratoga* was next sprung successively upon every vessel wearing the British flag, and the victory became complete.

The fourth division of the sketch shows this stage of the action.

As evidence of the accuracy of level preserved at the *Saratoga's* guns, and of what even an inferior battery, both in number and weight of guns, when well served, can accomplish at anchor in smooth water, it is known

that the port guns of the *Confiance* were wholly disabled by the *Saratoga's* fire ; furthermore, it is related by a distinguished military officer who was on board the *Confiance* immediately after the action, that not a single gun, stauncheon, or other stationary erect object remained on her gun deck not marked by shot ; and that no position could be taken which was not in a line between shot holes, evidently made by the same shot passing through and through !

The rear of the American line consisted of the *Ticonderoga*, Lt. Cassin (late Commodore Cassin), a schooner with a crew of 110 men, mounting 4 long 18's, 8 long 12's, also four 32-pound carronades ; and of the *Preble*, a sloop, having 30 men and mounting 7 long 9's.

These two vessels were attacked by the *Finch* (sloop), with 7 18-pounder carronades, 4 long 6's, and 40 men ; and by thirteen gun-boats, mounting each two long guns, and manned with 53 men each.

The gun-boats soon forced the *Preble* out of line ; whilst the *Ticonderoga*, in return, by a discharge or two, drove the *Finch* away in a disabled condition (exhibited in the third division of the sketch), leaving as contestants only the *Ticonderoga* and the gun-boats—the latter with power, by means of their sweeps, to take position at pleasure. Though for attacking heavier vessels on their broadsides the gun-boats are ineffective, for a flank attack they are formidable.

All interest in the battle of the rear, and its only influence upon the result, centres in the protection afforded by the *Ticonderoga* to the *Saratoga* against assault by the gun-boats ; for their fire upon the *Saratoga*, if they could have reached her, and delivered it in addition to that she was already receiving from the *Confiance* and from the *Linnet*, or at a later period during the attempt to wind, would have added to the exceeding jeopardy of the moment.

The commander of the little sloop Preble, which, in the wise aim of the British gun-boats to get at the *Saratoga* they first attacked exclusively and overpowered, was much censured ; but really, had he maintained his position and beat off so great a force as pressed him, it would have been justly regarded as a most gallant and extraordinary achievement.*

After driving off the Preble, the force of gun-boats next swept up under the *Ticonderoga's* stern, but dared not pass her formidable broadside. To carry her by a fire poured into her stern, or to board her over the taffrail, were both most perseveringly attempted, and as gallantly, heroically, persistently, and successfully resisted. For this, next to Commodore McDonough himself, Capt. Cassin deserves to be remembered by the Navy, and by the frontier which he fought to defend, so long as history shall endure. It was one of *the* great feats of the war, standing out prominently and challenging admiration. But for it, Commodore McDonough, with all his genius and forecast, all his skill, gallantry, and perseverance, would have failed to conquer. Cassin is said to have been in the action a perfect rock of firmness, and, amid a shower of missiles from the assemblage of force under the stern of his vessel, to have kept his station on the taffrail, a miracle of

* Admitting it to have been impossible for the Preble to repel her assailants, the alternative presented, to escape or be captured, was, to say the least, embarrassing. Escape subjected the Commander to damaging imputations. If on the other hand, captured, it was certain the guns would be sprung by the captors on the *Ticonderoga*, to rake her, perhaps with fatal effect. The best plan, in such a dilemma in flotilla fighting, is to stand ready with spikes—cut nails large enough, even wooden plugs answer for the temporary purpose intended—resist as long as possible, and drive the spikes at the last moment before yielding. Such is the course pursued with field batteries. An instance in point occurred at Catesby Jones' brilliant action on Lake Borgne, in December, 1814, where the guns of the captured gun-boats were thus used by the enemy. By the precaution of spiking, this would have been avoided, and possibly the immense loss experienced by the enemy rendered still more severe. In boat "outfits" provide spikes.

coolness. Yet we are lost in amazement at the obscurity to which, from some generally unknown cause, he was consigned in life, and the oblivion into which his memory has fallen. Let the service and the country render tardy justice, and make the names of McDonough and Cassin, as Perry's and Decatur's have long been, the synonym of heroic gallantry.

In conclusion, then, it is remarked, that the careful student will find in history no general action fought at anchor more instructive, therefore more worthy of his attentive notice, close study indeed, than this, viewed in whatever aspect—whether in reference to the attack or the defence, the personal or the material, skill or science, gunnery or seamanship, or as furnishing examples, in most of these respects, of warning as well as for imitation.

DEFENCE OF HARBORS—LORD HOWE AT SANDY HOOK
IN 1778.

It is always to be borne in mind, that afloat in protected bays or harbors, or on lakes or rivers, owing to smoothness of water, gunnery is vastly more effective than at sea, and in precision almost equals that of batteries on shore. Hence an approach in such waters to attack a line of ships, whether they be at anchor or under sail, is a much more serious undertaking than it is on the undulating surface of open roadsteads or of the ocean. Commodore Perry on Lake Erie experienced this, though to a less extent than if the vessels he attacked had been larger. So also did Capt. Downie on Lake Champlain. And it becomes a question, if in this view the defence does not, in land-locked situations, so

gain relatively in advantage over the attack, as to become preferable. The consideration is entitled to weight, in forming plans of attack or of defence in such circumstances.

Had Commodore McDonough's purpose been to defend the entrance to Plattsburg bay, smooth as the water was, his vessels were as effective for the purpose, or nearly so, as the same number of batteries of like force established on breakwaters, or other such structures.

A channel, as at Sandy Hook, New York, is not effectually defended by a fleet moored across, because of the inaccuracy of fire produced by waves or swell from the sea, and because of liability to be forced from the moorings by easterly gales, and inability to regain the defensive position with readiness on their subsidence.

In 1778, Lord Howe, with an inferior force, defended the channel at Sandy Hook against the entrance of the French fleet. For the reason indicated he did not moor across, but along its southerly edge, having in view not only protection of the channel against the French, but protection of his fleet against heavy easterly weather. For this latter purpose, the head of his line of defence disposed easterly and westerly, laid under the point of the Hook, sufficiently far south to get its full protection. His springs were carried in a north-easterly or seaward direction, from the port or northerly quarters of the ships when they tended to the flood tide—assuming that no enemy would attempt the entrance, except on the flood, with an easterly wind, both tailing the ships westerly. The whole line was made to curve or incline its rear slightly to the northward, the better to cant the broadsides on the channel of approach; also that when riding to a gale, no ship would swing directly in the hawse of another, or fall foul in case of dragging or parting.

If, therefore, the French fleet had attempted the entrance (which it did not), by first springing to the eastward, then riding to the tide, and again springing to the westward, as the enemy's ships approached, passed, and sailed up the bay, they would have been under fire through several hundred yards of their progress, both outside in the approach, and inside after passing, and ought to have received such damage as would render them an easy prey to Lord Howe, whose plan was to slip, follow, and destroy.

Much is written concerning the relative fitness of ships and forts for harbor defence, and advantage to be derived from the employment of one or of the other for such service. The *stability* of a fort, and its *durability*, as well as *endurance*, are important considerations. So also is the *mobility* of a ship, even of a hulk, by aid of steam-tugs. The Pennsylvania, North Carolina, and a half-dozen more such ships, relieved of spars and all other weight but batteries, could as hulks carry each a hundred guns or more of the heaviest description; and with such powerful tugs as the great Sound and river steamers, placed secure from shot on the side opposite the enemy, could attain respectable speed for gaining position, or for chasing and mingling with an invading fleet, to cannonade it or to board.

A force of this description is adapted as auxiliary to forts anywhere, and is the only one capable of defending such extended places of refuge as Lynn Haven Bay, the Lower Bay at New York, or Hampton Roads. The first is incapable of defence by forts; the other two may be held in spite of land defences, if once the forts at the entrance are passed—as they may be by a concurrence of favorable circumstances, such as steam, spring tides, and strong easterly winds. With this concurrence, the entrance of a fleet may be hindered, but cannot be prevented.

When these forts are once passed, they become for the occasion useless. Their garrisons also are rendered comparatively so, because the enemy is beyond reach of attack from the land, on which alone troops are trained to serve. With ships and sailors it is different; for if the entrances mentioned are forced against ships, they follow up the enemy by means of the tugs attached; and the seamen, when no longer of use afloat, are readily made available on shore.

Being at home, the defence is the party that can afford desperate risks, unjustifiable in the invader, who is supposed to be without reliance on exterior aid, making defeat destruction. An invading fleet, therefore, would naturally, under such circumstances, avoid as a *cul-de-sac* not to be entered except with great circumspection, any situation defended by a powerful mobilized force of batteries.

And in relation to defence of a pass, as the Narrows of New York, where water is smooth, being protected from gales, it may fairly be asked why the Pennsylvania, moored there with her four tiers of guns, and springs to govern direction of broadside, is not equally effective for defence as Fort Diamond, now called Fort Lafayette, with its tiers; and if the ship be really for the occasion equal to the fort, then the mobility of the ship constitutes an inestimable military advantage which the ship has over the fort.

At Sandy Hook, with steam-tugs as a means of regaining position when driven away by gales, moorings planted at short intervals across the channel, and taken hold of or cast off according to the tides, the swell, the weather, the season, and imminence of the attack, is one method of defence. That adopted by Lord Howe another. The judgment of an officer would decide between them.

Heavy moorings, planted at the edge as well as across the channel, to be taken, the one or the other, according to circumstances, would involve no great expense, and might prove the wisest as well as the most economical expedient.

When the defence is hold of the moorings at the edge of a channel, the enemy might undoubtedly get by, as they do by forts. But then the mobility of ships may be availed of, to follow and to grapple at all hazards; to encounter which hazard recklessly is, as has been before remarked, the privilege, the policy, and therefore the duty of the party near supplies and reinforcements; but not wisdom in the invader, who, far away from all resource, must heed the counsels of prudence.

If, on the other hand, the cross moorings are taken up by the defence, and they and the batteries at them are close enough, by the time an invader, head on, has reached them, he ought to have become so far crippled that even if able to cut through and proceed, a second raking fire poured into his stern, should certainly add to his disability, so far as to render a *coup-de-grace* by means of the mobility of the defence, a matter of easy accomplishment.

As hulks for harbor defence, the old men-of-war, including sloops, too much decayed for service as cruisers, and no longer adapted to the improved state of arts as applied in war, therefore not worth the expense of repair, nor capable of conversion with advantage, are, on account of their strength and other peculiarities of construction, valuable, and ought no longer to be broken up at great cost not remunerated by the materials gathered.* The hulls of merchantmen are not fit for the heavy guns now in use.

* This disposal of our old ships, as adjuncts for harbor defence, was suggested by Commander W. M. Walker's admirable letter to the N. Y. Herald of December

The Stevens' battery, at an immense outlay of time and money, is in preparation for harbor defence, and when completed, will have but one advantage over a hulk, that is in speed;—whilst in fighting power of guns, which is less; in heavier draft of water; and in length, which renders it impossible to turn in a short space under steam, or to spring across the tide when at anchor, she will be greatly inferior in efficiency to the hulk. The Stevens' battery must be maintained at great expense from year to year, whether in commission or not, through a peace of indefinite length; whilst hulks need only ordinary protection from rain, sun, and fire, to last sufficiently sound for the purpose in question, if need be, the best part of a century.

By this it is not meant to disparage the Stevens' war steamer; for although inferior in some respects for harbor purposes, her superior mobility may, in very many conditions likely to arise, prove of most essential importance as auxiliary to a plan of defence with hulks such as here sketched. Yet, if construction of the steamer is of consequence, the preservation of the hulks is of still greater consequence.*



Recurring to the time when the agency of a dominant fleet at Yorktown in securing our national independence, as pointed out in the accounts of Graves' action, was made manifest; when Trafalgar, as is shown, saved London and doomed Vienna; and again when

21, 1858; in which he opposes their conversion into screw ships as a costly operation, offering no reasonable hope of a satisfactory result. This view the author entirely adopts.

* See notes, pp. 205-207.

the naval victories of our Lakes, in the war of 1812, saved frontiers, cities, blood, and treasure to an incalculable amount;—going back to the period when beleaguered Rome was relieved by her naval power which “carried the war thence into Africa,” as England since, in imitation, best protected her own threatened shores by carrying her contest to the Pyrenees, through her naval ascendancy;—coming down to more modern times, when our invasion of Mexico was rendered successful, in its incipency almost bloodless, and in an important degree discouraging to the enemy, by the successful use of a commanding naval co-operation; and when, at Sebastopol, a contest of endurance and of supplies, as well as of fighting, carried on between the Russians and the Allies, terminated successfully for the latter only in consequence of their naval superiority, which not only kept open the more ready transportation by water for them, whilst closing it to the adversary, but kept open also the paths of commerce for acquiring money necessary to carry on the war—thus imitating England’s policy pursued in the great contests with Napoleon, when, debarred from the continent, she garnered wealth from Asia, America, and from the isles of the sea, as means for subsidizing Europe;—recurring to those times and circumstances, the importance of an efficient naval organization, either for attack or for defence, to the external relations of a nation, becomes apparent, as of the first consequence; and no such organization, whatever its material excellence, can receive its full development of usefulness, especially in these latter times when science is brought so strongly and intimately in aid of the art of war, unless in the hands of a body of trained, intelligent and devoted officers, educated for their profession from the start.

All should rejoice, that though in the early service

of most officers the "fostering care" announced by Government was but a promise, to those now entering the naval career it is a generous fulfilment. And if the country does not reap largely from the change, it will be because those who receive the immediate benefits do not cultivate a lofty sentiment of honor, and fail to accomplish themselves in professional practice :—for no amount of scholastic attainment can compensate for want of officer-like tone, or of skill in seamanship and gunnery, or of style, of energy, or of method in the performance of duty, on the part of those in the pathway which leads to the highest honors and responsibilities of naval command.*

And although last mentioned, not the least important of an officer's preparation is in the "Science of Command," the maxims of which may be found condensed in the ancient apothegm—"Iron grasp in velvet glove"; whilst the authority, the qualities, and the duties of Commander, have been never better set forth than in the language of Judge Kent, who says of that officer: "He is clothed with the power and discretion to meet unforeseen and distressing vicissitudes, and ought to possess moral and intellectual qualities of the first order. His authority is necessarily summary, and often absolute; and if he chooses to perform his duties, or exert his power in a harsh, intemperate, or oppressive manner, he can seldom be resisted. He must have the talent to command in the midst of danger, and courage and presence of mind to meet and surmount extraordinary perils. He must be able to dissipate fear, to

* This, as at West Point, will result naturally as an effect at Annapolis, from an infusion there of the military-naval element, and rendering the professional sentiment predominant, by the employment of officers, especially for the supreme command, who are members of the solid, sea-going, serviceable, practical navy, belonging to it as the earth does to the solar system, not as comets do, by brief occasional visits. But whilst the Naval Academy, however excellent its corps of permanent scientific professors, falls into the hands of officers whose training

calm disturbed minds, and inspire confidence in the breasts of all under his command. In tempest as well as in battle 'he must give desperate commands, he must require instantaneous obedience.' He must watch for the preservation of the health and comfort of his crew, as well as for the safety of the ship. It is necessary that he should maintain perfect order and preserve the most exact discipline, under the guidance of *justice, moderation, and good sense.*" Cultivate *imperturbability!*

has been mainly non-professional, or whose connection with the service proper has at any period of life been transient, the predominance of a high professional sentiment there, is not in reason to be expected. As pertinent to the subject, an extract is subjoined from the report of the West Point visitors for the year 1859, expressing more particularly the views of the Committee on Instruction, through their chairman Col. Baker, late of the Ordnance Corps—a gentleman as distinguished when in the army for professional acquirement and lofty military tone and bearing, as in private life for social virtues and practical talent.

"Much has been said at a former period, as to whether officers of the army, detailed for duty as instructors, should or should not be relieved at regular intervals. The reflection and observation we have been able to give to this subject, inclines us to the opinion that officers detailed for duty at this place should not be made exceptions to the rule. If no change of instruction be desirable, why not withdraw the commissions in the army from the instructors, and make them assistant professors, not subject to be called into service? This, we think, would soon make the institution a *military academy in name only*, and sink it in the estimation of the army and of the country.

"Sending from the Military Academy into the line of the army every year a number of officers, who have with their advancing years largely increased, by close application and the instruction of others, their knowledge of the abstract sciences and their application to public improvement, arts, and arms, and bringing in exchange from the army to the Academy those who, from daily observation and experience, know the wants of the service, and who, by their active military life, are calculated to preserve the military character of the Academy, *by infusing a military spirit into the cadets*, are, we believe, reciprocally beneficial to the army, the Academy, and the country."

Nor is the important purpose pointed out in this extract to be accomplished by a mere apology for an exchange of duties, such as temporarily quitting the Academy during a brief period only of select service; for under such circumstances it is not possible an officer can so engage with his whole heart in "active naval life" as to become thoroughly re-identified—filled with the spirit of the service, and with a knowledge of its improvements and growing wants, such as is frequently needed to renovate the tone and practical teaching of the Institution, keep it in sympathy and in harmony with the active navy, maintain it a *Naval Academy* in fact as well as in name, give it an estimation and an influence which will cause it in turn to react and raise the standard of acquirement in the whole service, and by establishing between the Academy and the navy a relation thus reciprocally beneficial, make "Annapolis" to it what "West Point" has long been to the army, a school for martial, as well as for scientific training.

It will scarcely then be denied, that to carry out fully the purposes of the Academy, and make it all it should be to the navy, true policy requires frequent changes, except in the corps of professors, and the selection of officers who are disciplinarians, men of application, and who favor no relaxation of the course of studies, inculcating, as an incentive to the labor imposed, the maxim, true now as in the days of Horace:—"Non palma sine pulvere."

SECTION IV.

OF TACTICS UNDER STEAM.

THERE is an established system, by which the movements of steamships in a fleet are regulated, and which prescribes, 1st, the orders of steaming and their formation; 2d, the manner of altering the direction of the line on which an order is formed; 3d, the method of changing from any one order to another. The system has simplicity as its leading characteristic; seems ample for all the cases which can arise; is devised with ability, and set forth with clearness; and in the execution of manœuvres, provides invariably for a progressive, never for a retrogressive movement of the ship.

OF THE ORDERS OF STEAMING.

The system in question prescribes three orders of steaming, denominated respectively: "The First Order of Steaming," "The Second Order of Steaming," and "The Third Order of Steaming."

These several orders in their theory wholly disregard

the winds, waves, and currents, treating them as of no effect—as not even existing.

The orders are formed on what is *technically* called “a line of bearing,” which is a line wholly arbitrary, except as it relates to the direction of an enemy, and is simply and literally the line of “bearing by compass” on which the ships of a steam fleet are formed. It is not, therefore, to be confounded with the “line of bearing” for sailing fleets, which, as shown on page 9, is not arbitrary, but has a fixed relation to the direction of the wind.

OF THE FIRST ORDER OF STEAMING.

This order is formed with the whole fleet in a single straight line or column, which is a line of bearing, whether on a perpendicular to the course steered, or oblique to it, or in a direction coinciding with it—those three cases, affording all the varieties which can arise in the order.

In the first of these cases the ships are abreast or abeam; in the second they bow and quarter, or bear reciprocally at an angle with the beam; in the third case they are in line ahead. Thus if the course be north, or south, and the ships arranged on an east and west line, that will be a line of bearing perpendicular to the course, and the ships relatively abeam or abreast. If this course continues, and the line of bearing is altered less than eight points; or if the course alters less than eight points, whilst this line of bearing continues, the line becomes oblique to the course. And if the course steered, or the line of bearing, given in the example, are either changed eight points, so that the

course coincides with the line of bearing, the ships will be in a column ahead. But in each case, whether steering at right angles with the line of bearing, oblique to it, or in column ahead upon it, the fleet is in the first order.

OF CHANGING DIRECTION OF THE LINE OF BEARING.

When ships are in the first order of steaming, and it is intended to change the direction of the line of bearing, but to continue the course, the system requires a signal to "Alter" the direction of the line, by turning it on the starboard ship, or on the port ship, as a pivot, but not on a centre ship, for that would involve in part a retrogressive motion. The manœuvre is executed by throwing forward the ships of the wing opposite the pivot (yet preserving the line), without changing the course when the alteration is not great; but by wheeling the line, or by steering all except the pivot ship on diagonal lines, when the alteration is considerable—resuming the course when it is effected.

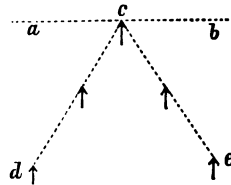
Whatever the course steered may be, the line of bearing is meant to be perpendicular to the direction of an enemy when one is near—from which direction an attack may be apprehended, or in which to make one may be contemplated. When, therefore, a fleet in this first order is on a line of bearing perpendicular to the direction of an enemy, by bringing all the ships together in a line ahead on the line of bearing, their broadsides are presented in a uniform direction, defensively against an attack. So also by coming together on a course perpendicular to the line of bearing, the ships assume an attitude of offence, head to the enemy.

Thus, for example, suppose the enemy to be in the N. E. quarter, the line of bearing therefore to lie N. W.

and S. E. When the ships are brought in line ahead N. W. or S. E., their broadsides are presented against an attack. And if the ships' heads are laid N. E. the direction of the enemy, and perpendicular to the line of bearing, they are in an attitude for attack.

OF THE SECOND ORDER OF STEAMING.

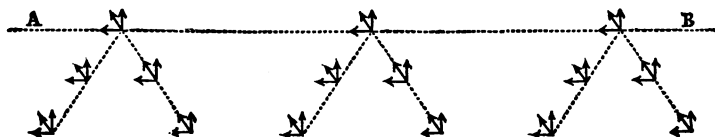
If a single squadron or division of a fleet be steaming by itself, when in the second order it is formed on two legs, which meet and make an angle of six points; each leg at the same time being at an angle of five points with a perpendicular to the course. The figure here inserted shows five ships in the second order; $c d$ and $c e$ are the legs; $a b$ is perpendicular to the course; $d c e$ is an angle of six points; $a c d$ and $b c e$ are each five points.



When a fleet in the second order is in two or more squadrons or divisions, each squadron forms on the two legs of a triangle; the angular ships of the squadrons are on a line of bearing, and the legs on which the other ships are arranged, make each an angle of five points with the line of bearing, and not, as just explained in case of a single squadron, an angle of five points with a line perpendicular to the course.

So long as the legs of the squadrons are at the prescribed angle of five points with the line of bearing on which the angular ships form, it is immaterial to the order on what course the ships are steering, provided it is the same for all, all sailing on parallel lines.

Thus in the Fig. following, A B represents a line of bearing, on which the angular ships of three squadrons of a fleet of steamers are arranged, the two legs of each squadron forming an angle of six points, and each leg forming with the line of bearing an angle of five points. The arrow-heads exemplify the different directions in which the ships of a fleet in this order may steer, provided all are on the same course, whether that be at right angles with the line of bearing, oblique to, or parallel with it. All which should be sufficiently apparent by inspection, without further explanation.



To readily determine how the angular ship of a squadron should be brought to bear by those on the legs, so as to establish the prescribed angle of five points with the line of bearing, it is only necessary to know what is its compass direction, then to count on the compass card five points from this direction. A little exercise will soon produce familiarity.*

By using a contrivance like the card on page 16, the determination will be facilitated. Refer to that card, and conceive the points P and R set at five instead of at six points with U F; then when U F is placed on the line of bearing, R and P will fall on the points of compass indicating the direction of the legs from the angular ship at O of the card—the legs forming on the side of the line of bearing which is opposite to the enemy.

* A wing ship cannot know the precise direction of the line of bearing, unless advised of it by signal from one of the angular ships, properly the Commander-in-Chief's.

In the second order, whatever the course steered may be, the line of bearing of the angular ships is meant to be perpendicular to the direction of an enemy when one is near, from which direction an attack may be apprehended, or in which one may be contemplated. By bringing the fleet together on a course perpendicular to the line of bearing (like one of the sets of arrows), head on to the enemy, the fleet is in position for making or receiving an attack, by means of the cross-fire it can deliver—first from the bow guns of the ships, and when nearer, from the broadsides trained sharp forward. Undoubtedly the wing ships would incline, under a strong inducement, to depart from the strict formation of the second order, by bringing those of each wing into line ahead, thus presenting the cross-fire of whole direct broadsides, as a most formidable defensive arrangement. But such a convergence of direction on the angular ship, would produce crowding, collision, confusion, and disaster; therefore the inclination is to be most carefully resisted.

OF THE THIRD ORDER OF STEAMING.

This order is formed on a line of bearing, but in two parallel lines or columns. If the course steered is at right angles with the line of bearing, the ships of each rank are in line abreast; if coincident with the line of bearing they are in column ahead; and if steering obliquely, on whatever course, the ships are still in the second order, provided a line of bearing is preserved, and ships continue on the two parallel lines or columns.

The purpose of this formation is, besides simplicity

and compactness, probably, to place the main body in one line or column, and the light or reserve division in another. Or it may be for attack in a double line abreast, the foremost rank breaking through the enemy and coming broadside to—the rear rank, manœuvring so as to place the portion of an enemy attacked between two fires.

ARMAMENT OF STEAMERS, AND ATTACK WITH STEAMERS.

For the attack, inasmuch as at most two guns can ordinarily be mounted in the bow on any deck, they need to be, and by universal assent are, of the heaviest description in both weight and calibre. They possess great range and superior intrinsic accuracy; although for very distant firing, this does not perhaps, on the ocean, practically avail to the extent that is generally thought, because of the undulation, which gives an ever-varying direction to the aim, and of the large linear measurement, which at a great distance subtends a small angular deviation. But the liability at sea to miss the object, though thus unavoidably great with any gun at considerable distances, is least with the heaviest guns; and is less with bow guns, which are affected principally by the pitching motion, than it is with broadside guns, which are affected by the rolling motion.

This latter cause of inaccuracy of practice (rolling) with guns in broadside, is greater on board steamers, which are intended to be fought without sail, therefore without any thing to steady them, than it is in vessels fought under sail as the motive power, especially

when the line on which the steamers are fought is in a direction corresponding with the trough of the sea. It may indeed prove, that the rolling of screw steamers, which is deeper and quicker than that of side wheel steamers, and far more so than that of sailing ships, will be damaging if not fatal to their universal introduction as the exclusive fighting vessels of the ocean; although for auxiliaries, as component parts in a sailing fleet anywhere, and as an entire fleet for smooth or sheltered places, they must always be unrivalled.

In respect to the proper constitution of broadside batteries for screw ships, opinion is divided. The greater number of seamen favor the nine-inch guns; whilst a less number, but of those esteemed better judges, favor the higher or eleven-inch calibre, of like proportional weight.

The advocates of the latter gun argue its superior range, accuracy, and destructiveness; all of which its opponents concede, especially its destructiveness, provided only it hits the mark! But considering its liability as a broadside gun to miss, in consequence of the deep and rapid rolling peculiar, as before remarked, to the screw ship; considering also the moral causes operating to draw parties, once engaged and with the blood up, nearer and nearer, till they finally grapple, it is concluded better to multiply the nine-inch gun in broadside.

OF THE ATTACK AND DEFENCE.

In establishing a line of bearing for the attack, it is wise, when practicable, to manœuvre for establishing it so that an approach to the enemy, on a perpendicular to

the line, will be across the sea or waves, consequently so as to throw the line of the defence in the trough of the sea; by which, whilst the attacking ships will steer head on for the enemy across the waves, the defence will be obliged to display its broadsides in the trough of the sea, occasioning a wildly uncertain, if not harmless broadside fire. On the other hand, the effort of the defence should be to compel the attack to be made in the trough of the sea, and from a direction that will enable the defensive line of broadsides to form across the waves. This is an advantage pointed out as, under some conditions, worth manœuvring to obtain.

Probably a commander, disposed to receive the attack, but finding himself out-manœuvred in a seaway, and compelled to form his line of broadside defence in the trough of the sea, would, unless favored by a wind greatly retarding the attack, derive advantage from a change of plan, forming in the second or third order, and meeting the enemy in the shock of a counter attack.

Should, however, an attack be unwisely attempted from to leeward, directly in the teeth of a fresh breeze; or perhaps one not so fresh yet combined with a sea sufficient to retard and prolong the approach; continued adherence to the broadside for defence would undoubtedly prove advantageous; and the efficacy of the broadside fire, would probably be enhanced by steadying the ships with fore and aft sails, and a single small, easily managed, square sail aft to oppose headway. How far a profusion of these fore and aft sails may prove beneficial for use in action to steady a screw ship—sails which are readily got out of the way, and which, even if accidentally caught aback, are of no serious detriment—is a question which time and experience must answer. Obviously, few persons are capable of replying directly to this and most other questions which come up in treat-

ing so novel a subject as that of fighting a fleet of steamers; and he would be a bold man, perhaps more bold than discreet, who should, unless appearing with an unusual prestige, adopt other than a suggestive tone, in its treatment.

So recent is the introduction of steam into the navies of the world, that no maritime battle, and but little experience of any kind, is afforded from which to draw examples and illustrations—none, indeed, beyond that graphically exhibited by Capt. Dahlgren, in his work on shells and shell guns. But the language has been graced, and naval science enriched, by a very recent work from the pen of Gen. Sir Howard Douglas, on “Naval Warfare with Steam;” and to this work, especially the second Section, which has for a caption “On the Tactics of Naval Warfare with Steam,” the reader is referred, as to a mine of professional knowledge, which, diligently explored and wrought, will afford stores of matter for use when all one’s resources may be demanded to meet successfully the crisis of battle.

PAGE 16.

Any one wishing to construct a card for use, as directed in page 16, can cut out the parts from this impression of the Figure there given, and sticking them to corresponding shapes of pasteboard, make an instrument which will serve, although not so well as one of metal.



